

# THE IRON AGE

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## Moderate-Sized Plant Modernizes

By Installing Simple Conveyors and Trolleys, Regrouping Machinery and Instituting Four-Shift Working Day

IN a period when manufacturing operations within an industry are undergoing radical changes, it becomes necessary for the small and medium-sized plants as well as for the large companies to adopt the innovations which have proved successful. At least they can adapt to their own peculiar needs the general principles underlying the new system. Upon their ability to bring about these changes economically frequently depends their continued prosperity.

### Modernizing Without Rebuilding

Such a situation confronted the officials of the American Foundry Co., Indianapolis, a few years ago. In their foundry, old standard practices were being followed consistently in the manufacture of automobile cylinder blocks. Then came the introduction of many new customs into the foundry industry, such as the continuous pouring process, and various labor-saving devices in the molding room. The problem of lowering production costs would have been easier if a new foundry could have been built. But the question of revolutionizing an old one so that operations conform strictly to the newest, approved practice is more difficult. Nevertheless the American Foundry Co. has answered it satisfactorily without the necessity of financing the erection of a new foundry.

The buildings were substantially constructed of brick. The overhead structure, however, was not sufficiently strong to support heavy cranes or other equipment which would impose an undue burden. It was decided, therefore, to install an overhead monorail system which would reach into prac-

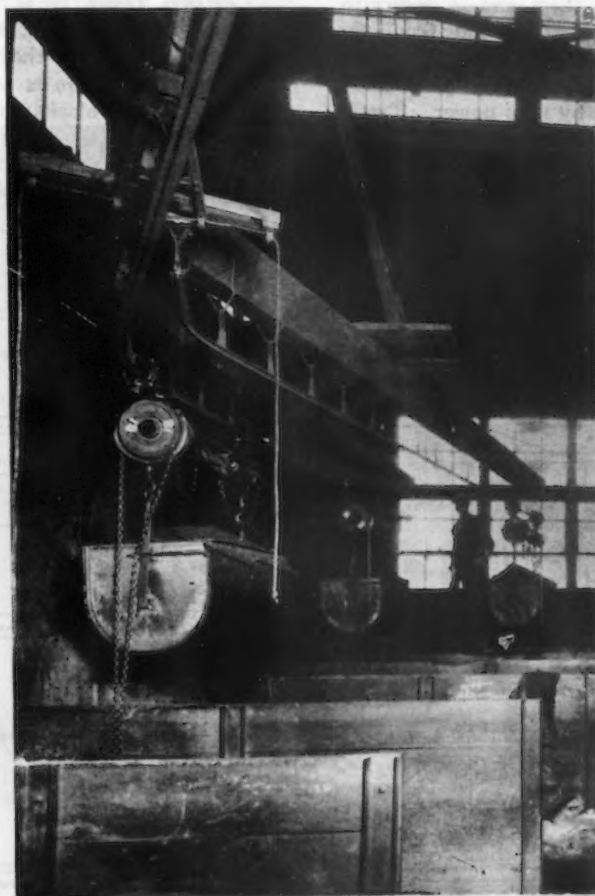
tically every department of the plant. The rails of this track (manufactured by the Loudon Machinery Co., Fairfield, Iowa) are hung from the wooden roof trusses as shown in the various views. At the same time new equipment was introduced and continuous molding established.

It might seem that much time would be required to effect these changes. But the work was so coordinated that the foundry closed on Friday afternoon after operating on the old basis and opened Monday morning ready to produce castings by new methods.

### Four-Shift Day an Important Innovation

The main foundry floor is divided into two portions of equal size, the division line running the length of the structure. Along this central line are located the molding machines. The workmen are grouped into three sections, consisting of the molding gang, the pouring gang and the shakeout gang. They operate on four shifts a day arranged as follows: 7 a. m. to 9 a. m.; 9 a. m. to 11 a. m.; 11:30 a. m. to 1:30 p. m.; 1:30 p. m. to 3:30 p. m. During the first period the molding gang works on one floor, with the pouring gang following about two rows behind. At the same time the shakeout gang is busy on the other floor, getting it ready for the pouring and molding gangs to use it at nine o'clock. When the second period arrives, the locations of the gangs are reversed, the molding and pouring gangs occupying floor No. 2 and the shakeout gang, floor No. 1.

Because of the continuous pouring system and of the shifting of the men from one section of the



SAND Is Taken From Shakeout or From Storage to Mixing Plant in Buckets. Note switching device



**CARRIAGES**  
Move Broad-  
side Through  
Sand Blast.  
Double turntable  
brings trolleys  
into line for  
monorail

floor to another, production has been doubled without increasing the amount of molding floor space, the number of necessary flasks has been reduced 50 per cent without decreasing the output of castings, and night work has been entirely abandoned.

#### Monorail Handles Material in Production

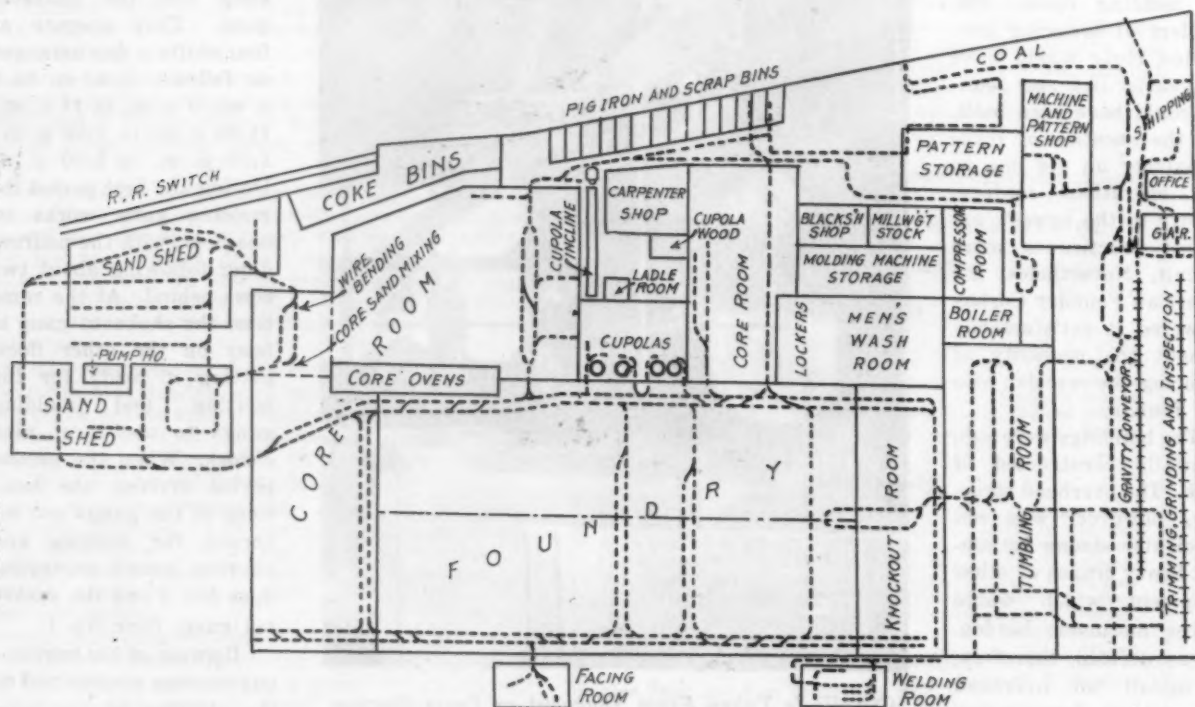
In the practical working out of production problems at the American Foundry Co., the monorail system has been so interwoven into the various operations that it cannot well be separated from them and is deserving of detailed study. On trolleys suspended from the rails are numerous kinds of carriers which differ according to the particular service being performed. These carriers are moved about by man-power. Traffic is sufficiently heavy so that two main lines of track are necessary in the greater part of the plant. Many switches cross from one line to the other so that ma-

terial can be delivered to almost any portion of the plant. Switches are controlled by rope pulls, as shown in one of the views.

The heat is tapped into a ladle hanging from the monorail in front of the cupola. A workman then hooks the ladle and pulls it to the pouring floor, where it is lifted by an air hoist on an overhead crane to the pouring position. When empty, the ladle is taken by the crane back to the monorail conveyor, on which it is transported to the cupola.

Castings taken from the molds by the shakeout gang are placed on a platform, and then carried by monorail conveyor to the knockout room.

A slight variation is noted in the arrangement for moving cylinder blocks through the sand blast room. Instead of a single rail there are two paralleling each other. From them is suspended a crosswise carrier from which dangle a number of chains. Attached to



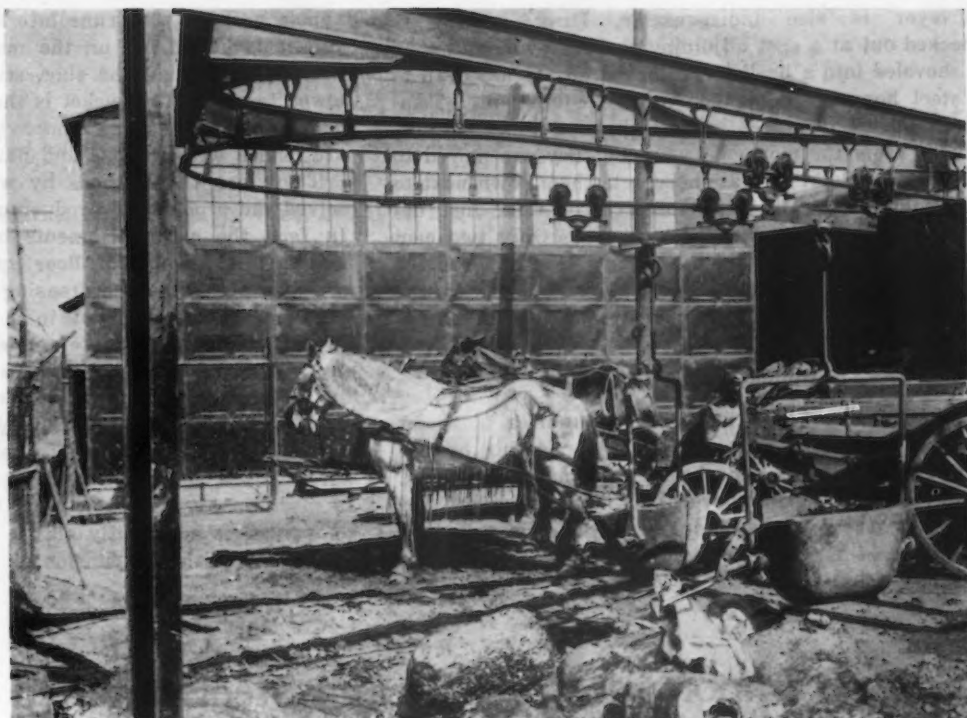
Sketch Map Showing Loudon Overhead Conveying System at American Foundry Co., Indianapolis



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**CUPOLA** Slag  
Caught in  
Pots, Transported  
Outside, Cooled  
and Dumped

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each chain is a cylinder block. Each block can be turned completely around during the sand blasting and then shuttled to one end of the carrier so as to make room for the next block. When all of the blocks are sand blasted, the carrier is taken on the parallel monorails to two turntables, operating in unison, which transfer the trolleys so that the carrier can be run off at right angles on a single rail to the grinding department.

In the finishing room use is made of both overhead transport and gravity conveyors. Running the full length are three Logan conveyors of the latter type, each handling a different kind of casting. On the journey down the gravity conveyor the castings are taken off by hand at several points for grinding and other

machining work, and at the end the monorail again picks up the cylinder block and carries it into the shipping room. A number of blocks may be handled at once on a chain hoist suspended from the monorail. The hoist is equipped with a long bar having numerous hooks, and from each hook is suspended a cylinder block. Blocks are taken by hand truck from the door into the railroad car for shipment.

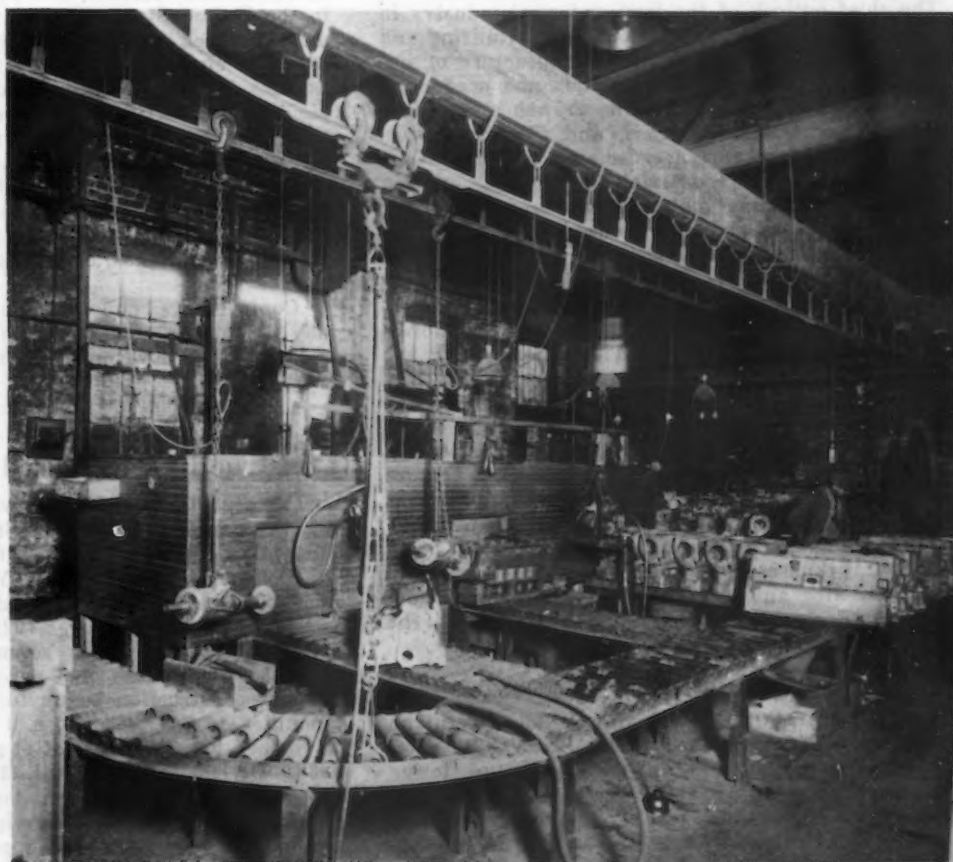
Core and facing sand is handled from bins by monorail conveyor in bottom dump buckets with a capacity of 1900 lb. Some buckets are divided into compartments, each of which contains a special kind of sand. In this way special mixes can be proportioned and dumped into the muller.

In the preparation of facing sand the monorail

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**EXAMPLE** of  
the Effective  
Use of Overhead  
and Roller Con-  
veyors in Finish-  
ing and Reclama-  
tion Departments

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conveyor is also indispensable. Drag molds are knocked out at a spot adjoining the conveyor, and sand is shoveled into a bucket and moved on the monorail to a steel hopper feeding the mixing equipment. Tempered sand is deposited in boxes holding 14 cu. ft. suspended from the monorail, whereby they are moved to the molding floor. An air hoist sets them down next to the molding machines. During the process just described the sand is shoveled but once. Only two men are needed for the entire operation. One delivers the sand to the facing room and brings it back to the molding floor; the other operates the mixing machinery.

#### Unique Slag Disposal

The usual practice in smaller foundries is to let the slag drop into a hole in the floor. This hole is kept full of water, and the slag becomes a stringy, spongy mess which is shoveled into wheelbarrows and dumped. At the American Foundry Co. a cast iron dump bucket is spotted under the weep hole of the

cupola and the slag runs into it. When the bucket is full it is pulled out on the monorail conveyor to the dump yard, where the slag, still in the bucket, is allowed to cool. The bucket is then tripped and the slag drops out in one large lump. At intervals the lumps are loaded onto wagons and hauled away.

These are the methods by which the company has solved the problem of producing castings economically. In fact, the accomplishments can be definitely measured. The amount of floor space has been reduced considerably without decreasing the volume of output. Man-power has been cut to a minimum through the operation of an adequate conveying system. If it is necessary to curtail activities at any time, this foundry has no expensive transportation equipment and there are no skilled operators lying idle but contributing substantially to overhead expenses. The general arrangement at this foundry, therefore, is designed to meet, in an admirable way, the needs of the company, and is sufficiently elastic to respond readily in a period of either expansion or contraction.

## South's Importance in Iron and Steel Detailed in Survey

Department of Commerce Publishes Book Which Is the First of Nine  
Regional Investigations of Industrial Growth

WASHINGTON, Jan. 14.—An interesting fact about the iron and steel industry of the Southeast is that it is growing up in an area which not so many years ago did not consider itself industrially important, nor was it so looked upon by other sections, says a review of the industry made in a publication, "Commercial Survey of the Southeast," issued by the Department of Commerce. The survey, well illustrated, comprises 477 pages, and is the first of a new series of nine regional analyses covering the whole country.

The purpose of the survey is to present a picture of the fundamental economic conditions within the southeastern trade area, with particular reference to the marketing of products. Particular emphasis is laid upon commodity movements, sales problems, indexes of income, and consumption.

The chief outlook of the iron and steel industry in the Southeast is declared to rest upon capitalizing and encouraging opportunities for the manufacture of numerous items required for consumption and production as the whole South develops. The growth and expansion of the textile and knit-goods and allied industries throughout the Southeast are declared to furnish one of the most important industrial markets in that area for hardware, building materials and goods required for plant operation and maintenance. On the other hand, it is said, this development has offered a market for specialized machinery and supplies, of which over 90 per cent is still purchased from New England. It is stated that evidence of the character of allied development which is taking place in connection with the iron and steel industry may be found in the already established plants manufacturing sugar-mill, vegetable-oil mill, and cotton-compress machinery, cotton gin, agricultural equipment, ice-making, textile, lumbering, mining and miscellaneous machinery, stoves, heaters and furnaces, chemicals, and railroad-car equipment at various points in the Southeast, but chiefly centered around Birmingham. The iron and steel area, it is pointed out, promises to be a concentrated manufacturing section, with an increasing consuming population, having a purchasing power determined by current income.

#### Iron and Steel Second Only to Lumbering

The review explains the advantages looking to the building up of the iron and steel industry by reason of the close proximity of raw materials and lower freight rates, together with labor and markets. Grouping all phases of iron and steel production in Alabama makes the industry, as a whole, second only to lumbering in the average number of industrial wage earners

in 1925. Those engaged in the production of iron and steel and their products average more than 27,500, large numbers of whom are negroes, both skilled and unskilled workers. In the value of product the iron and steel industry has no rival, yielding an output of about \$194,000,000 in 1925. The industry in Tennessee employed somewhat more than 5800 with an output of \$26,500,000.

These facts, it is stated, all indicate that this industry is more closely confined to the location of raw materials than any other among the industries of the Southeast, and so far the important development is limited to the Birmingham area, Anniston, Gadsden and Chattanooga. These centers are declared to be representative of the present status of this industry in the South. Alabama, it is said, is the third State in the United States in the number of blast furnaces, most of which are in the Birmingham district, and Tennessee is eighth.

This industry, it is pointed out, does not end with pig iron production, since nearly 80 per cent of the total output is carried into further states of manufacture in the same plants, which usually operate steel works, rolling mills and foundries. The leading products in order of tonnage, it is stated, are rails, wire rods, plates and sheets, merchant bars, structural shapes, hoops, bands, cotton ties and bars for reinforcing concrete.

Copies of "Commercial Survey of the Southeast" may be obtained for \$1 each from the Superintendent of Documents, Government Printing Office, Washington.

#### Construction Decreased 1 Per Cent in 1927

Contracts awarded for new building and engineering work in 1927 in the 37 States east of the Rocky Mountains totaled \$6,303,055,100, according to the F. W. Dodge Corporation, New York. This was a drop of 1 per cent from the record total of 1926, and an increase of 5 per cent over 1925. For the entire country, 1927 construction volume was estimated at \$6,800,000,000, a loss of 3 per cent from 1926.

New construction begun in December in 37 States amounted to \$477,363,800, a 3 per cent increase over November, but a decrease of 11 per cent from December, 1926. Of last month's total 43 per cent was for residential buildings, 19 per cent for public works and utilities, 18 per cent for commercial buildings, 6 per cent for industrial projects and 5 per cent for educational buildings.



# Improvements in Ferrous Sintering

Continuous Dwight & Lloyd Process Shows 500 Per Cent Production Increase—Profits to Be Had

BY EDWARD J. TOURNIER\*

**I**NCREASE in daily production of sinter from 180 tons to 1200 tons on a single sintering machine is due primarily to two factors, both having to do with the mechanics of the process rather than with its chemistry. The chemical constituents and physical structure of sinter have been already discussed in the pages of THE IRON AGE and, so far as recent investigation of these properties shows, the 500 per cent increase in production cannot be thus accounted for. The largest of the early sintering machines had a grate area of 90 sq. ft., while the latest large-size machine has a grate area of 380 sq. ft., an increase of over 300 per cent.

The first factor is the improvement in materials control and the second is the improvement of sintering machines. Materials control extends not only to the raw materials, but also to the sintering mixture. Closely related to materials control is the regulation of ignition and air supply. The second factor consists in the increase in machine dimensions, synchronizing of machine speeds with the control of sintering materials and improved regulation of air blast.

Continuous production of sinter having the proper structure and a minimum of fines depends to a large extent on close observation of raw materials and sintering mixture and on instant alteration of any of the functions of mixing, sintering or ignition equipment and of the fan or blower.

\*Mechanical engineer, 110 Clinton Avenue, Clifton, N. J.

Flue dust is admittedly an ore waste which up to the present has been unavoidable. It constitutes a burden on pig iron production costs, principally in the loss of the ore value.

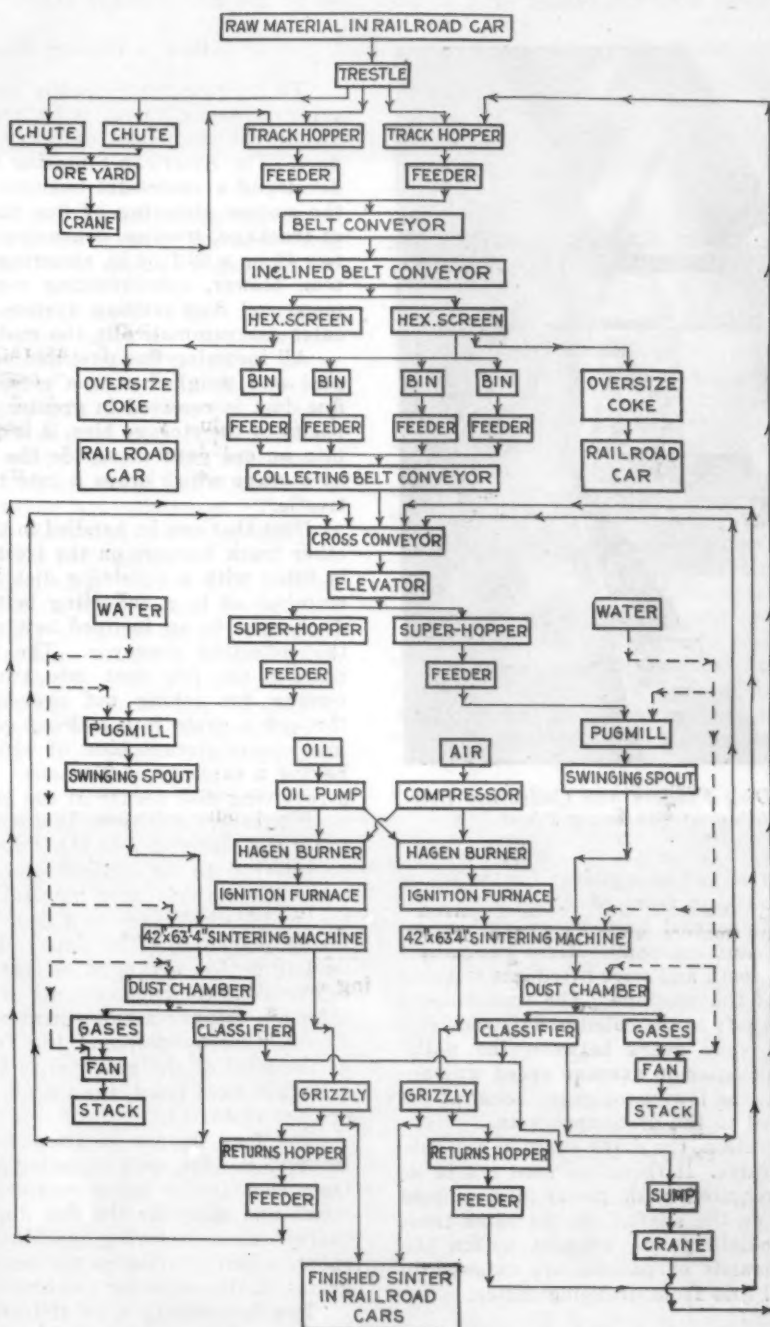
All flue dust can be sintered to a physical state superior to natural ores, at a fraction of the unit cost of equivalent ore.

Profits from sintering current make of flue dust are still greater than that from stock pile dust. In addition to the net gain on ore values reclaimed, this saves (1) cost of transportation to and from stock piles, (2) losses from the elements and (3) loss of unreclaimable dust from the ground storage.

Further, the use of 100 per cent sinter in the blast furnace will effect economies not believed possible heretofore. Indeed, the use of all-sinter is an accomplishment of very recent date. It is being done, however, by the Chateaugay Ore & Iron Co., Lyon Mountain, N. Y., where only sinter is used in the blast furnace. The E. & G. Brooke Iron Co., Birdsboro, Pa., uses 100 per cent sinter part of the time.

The continuous sintering process makes possible the high-quality sinter required to accomplish the results just mentioned, by reason of instant control of the complete cycle of operations, such as—

- a—Proportioning the constituents of the charge,
- b—Regulation of proper moisture,
- c—Proper depth of bedding on the grates,
- d—Correct intensity and distribution of ignition,
- e—Constant observation and means of adjustment,



Flow Sheet of Continuous Sintering Plant, American Sintering Co., from the Raw Material in Railroad Cars to the Finished Sinter, Also in Railroad Cars

- f—Control of time element of sintering zone,  
g—Automatic synchronism of proportions and volume of feed to the demands of the sintering machine.

In addition, it makes possible the automatic control of uniformity of the sintering charge, provides means for inspection of grates outside of the sintering zone, and also makes provision for the replacement of grates without interruption of operations. The continuous discharge in a relatively small stream facilitates effective screening.

### Sintering Machine Improvements

PREVIOUS to 1917 sintering machines were made in two sizes: 42 in. x 22 ft. and 42 in. x 25 ft. 6 in., the dimensions being those of the windbox area. Pallets were carried on wheels having plain journals. Pallets of the upper strand in the sintering zone were actuated by a pair of sprockets at the drive end of the machine, in engagement with the rollers of a pallet.



Fig. 1—Revolving Disk Feeders and Collecting Belt in Bin Building of Sintering Plant

The body of the latter served as a pusher for the entire load of sintering material in front of it.

The return strand traveled back by gravity on an inclined track to the starting point. Here the pallets engaged the sprocket teeth and were lifted into working position on the top of the machine. The transmission connecting the drive shaft to the countershaft consisted of several trains of spur gears between the pallet strands. The total reduction in average speed was approximately 2000 to 1, the low-speed gears being of the annular type connected to the drive sprockets.

Due to this construction, the drive shaft is not subjected to torsional strains. It therefore need not be so large as would be required with power transmitted through a spur gear on the shaft. At the same time, however, the intermediate gears, brought within the space between the strands of pallets, are exposed to the abrasive dust and grit from dropping sinter.

#### New Drive Avoids Dust Trouble

In the present design, sintering machines are operated through two countershafts and spur-gear reductions. The first countershaft is connected to a speed reducer which eliminates the intermediate gear trains. The larger size drive shaft required, because of the overhung gear drive, is offset by the freedom from abrasive dust trouble, and by the advantage of the inclosed speed reducer. The latter are usually Cleveland worm gears or Falk herringbone gears.

Pallets have been redesigned so as to be fitted with Hyatt or Timken roller bearings, and also as to the wind seal arrangement. In addition, the method of bringing the pallet to the sintering zone has been changed. The ends of the pallets have been designed so that they come in contact with faces on the sprocket teeth shaped in the form of a gear tooth. The wheels of the pallets roll on a curved track at the drive end of the machine, and the sprocket teeth in engagement with the back of pallets propel the latter around the curve.

This new arrangement eliminates a great deal of friction. It also avoids the occasional stoppage of the return pallet strand, immediately at the point of engagement with the sprockets.

Present designs of sintering machines are made in sizes of 42 in. x 57 ft. 4 in., 42 in. x 63 ft. 4 in. and up to 72 in. x 76 ft. 6 in. Accompanying the increase in grate areas, there has been also a gradual speeding up from the original 20 or 30 in. per min. to the present 90 in. per min. average speed.

#### How a Custom Plant Operates

To indicate more readily how the various function controls are effected, it is possibly best to describe briefly the equipment of a typical plant sintering flue dust. The American Sintering Co., Hubbard, Ohio, has developed a successful business devoted exclusively to the custom sintering of flue dust. The plant consists of trackage, trestles, conveying and mixing equipment, two 42 in. x 63 ft. 4 in. sintering machines, ignition system, blower, synchronizing controls, electrical equipment and dust-settling system. The flow sheet indicates diagrammatically the materials in process.

All incoming flue dust and outgoing sinter are sampled and weighed over a recording scale. When the flue dust is received in greater quantities than the capacity of the storage bins, it is dumped from the trestle into an ore yard alongside the track. It is reclaimed by a crane which drops it into track hoppers under the trestle.

Dust that can be handled in the plant is dumped into other track hoppers on the trestle. Each track hopper is fitted with a revolving disk feeder which feeds the material on to a collecting belt conveyor. The latter discharges to an inclined belt running at an angle to the collecting conveyor. The inclined conveyor discharges the flue dust into two revolving hexagonal screens for taking out over-size coke, which drops through a chute into railroad cars. It drops the fines into square storage bins, of which there are four, each having a capacity of 250 tons. Each bin is fitted with a revolving disk feeder at the bottom.

All feeders discharge to a collecting conveyor which takes the material into the sintering plant, where it is transferred to an inclined cross conveyor. This belt takes the material to a vertical belt and bucket elevator, which discharges to a double hopper over the sintering machines. The double hopper has a patented loading device, arranged so that, when material enters in excess of the requirements of the two sintering machines, a trigger arrangement will break an electrical circuit, thereby stopping the feeder motor. As soon as the level of the material in the hopper drops below a certain fixed point, the circuit is closed and the feeders are restarted.

The feed hopper is fitted with two revolving disk feeders, one for each sintering machine, the discharge from each feeder being received by a pug-mill which mixes and moistens the flue dust. Each pug-mill discharges to a sintering machine through a swinging spout, which distributes the material uniformly on the grates of the sintering machine.

Two heavy-duty type sintering machines are used. These machines, especially designed for the American Sintering Co. by the American Ore Reclamation Co., are 42 in. x 63 ft. 4 in. over the sintering zone, or the equivalent of approximately 222 sq. ft. suction area. Each machine is fitted with 84 grate-carrying pallets mounted on Hyatt roller bearing wheels, and is driven through two spur-gear reductions and one Cleveland worm-gear reducer. The latter is connected to a 10-hp.

\*A machine of this size, at the New Castle, Pa., plant of the Carnegie Steel Co., was illustrated and described in *THE IRON AGE* of Jan. 17, 1918, page 200.



*Fig. 3—Top Strand of Continuous Sintering Machine on Operating Floor of the Sintering Plant at Birdsboro, Pa., of E. & G. Brooke Iron Co.*



motor by a flexible coupling. The sintering charge on each machine is ignited by an ignition furnace using fuel oil. The oil consumption is about 0.6 gal. per ton of sinter.

Combustion gases are drawn into a dust-collecting chamber through ten suction pipes on each machine. The gases within the chamber are divested of heavy particles by the reduction of velocity and the reversal of direction. These heavy particles then fall on to a film of water covering the sloping side of the chamber. The water and dust are washed into a Dorr rake classifier, where the fine particles are raked out of the water and on to the cross conveyor last mentioned. The latter returns the sludge to the bucket elevator, which in turn places the material for retreating.

Each dust-settling chamber is connected by a 60-in. gas main to a Buffalo 100-in. double-inlet, center-plate wheel fan having a capacity of 60,000 cu. ft. of free air per minute, under a pressure of 20 in. water gage. Each of the two fans is equipped with spherical, self-aligning, water-cooled bearings. Each fan is directly connected to a 300-hp. motor by a flexible coupling.

Overflow water from the Dorr classifier flows

through a tunnel into a sump, where the remaining fine particles of material are settled out. Periodically the sump is cleaned out by aid of a locomotive crane, which takes the sludge from the sump to railroad cars. The latter are then shifted to the trestle and discharged into the track hoppers.

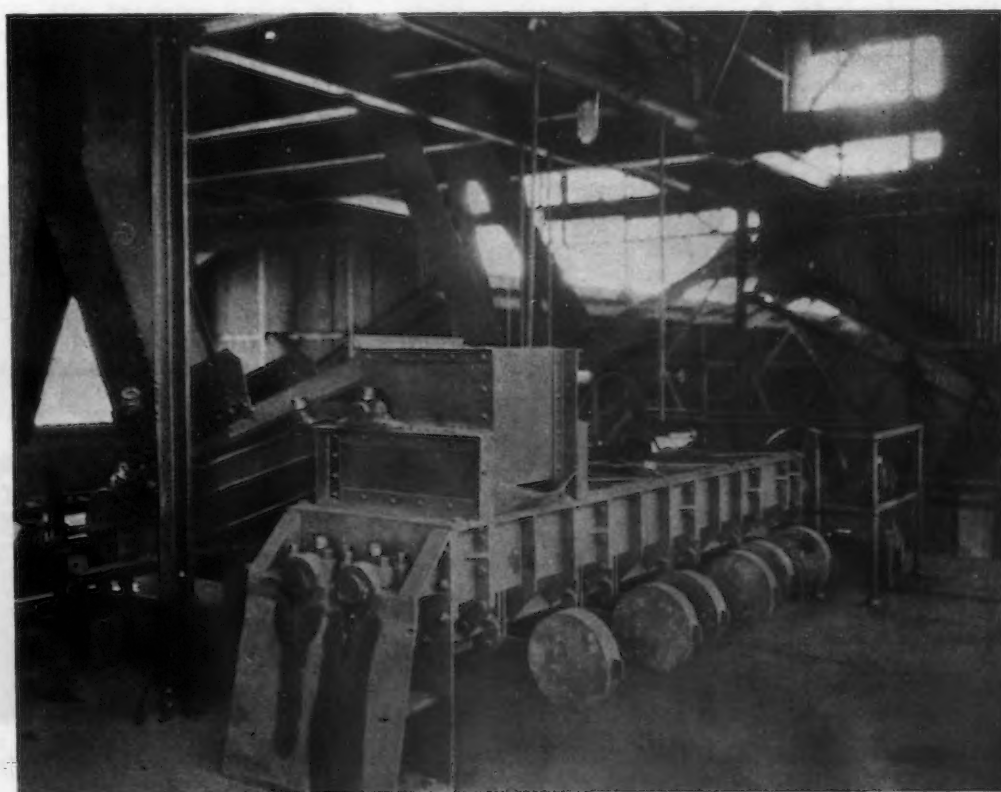
#### **Taking Care of the Product**

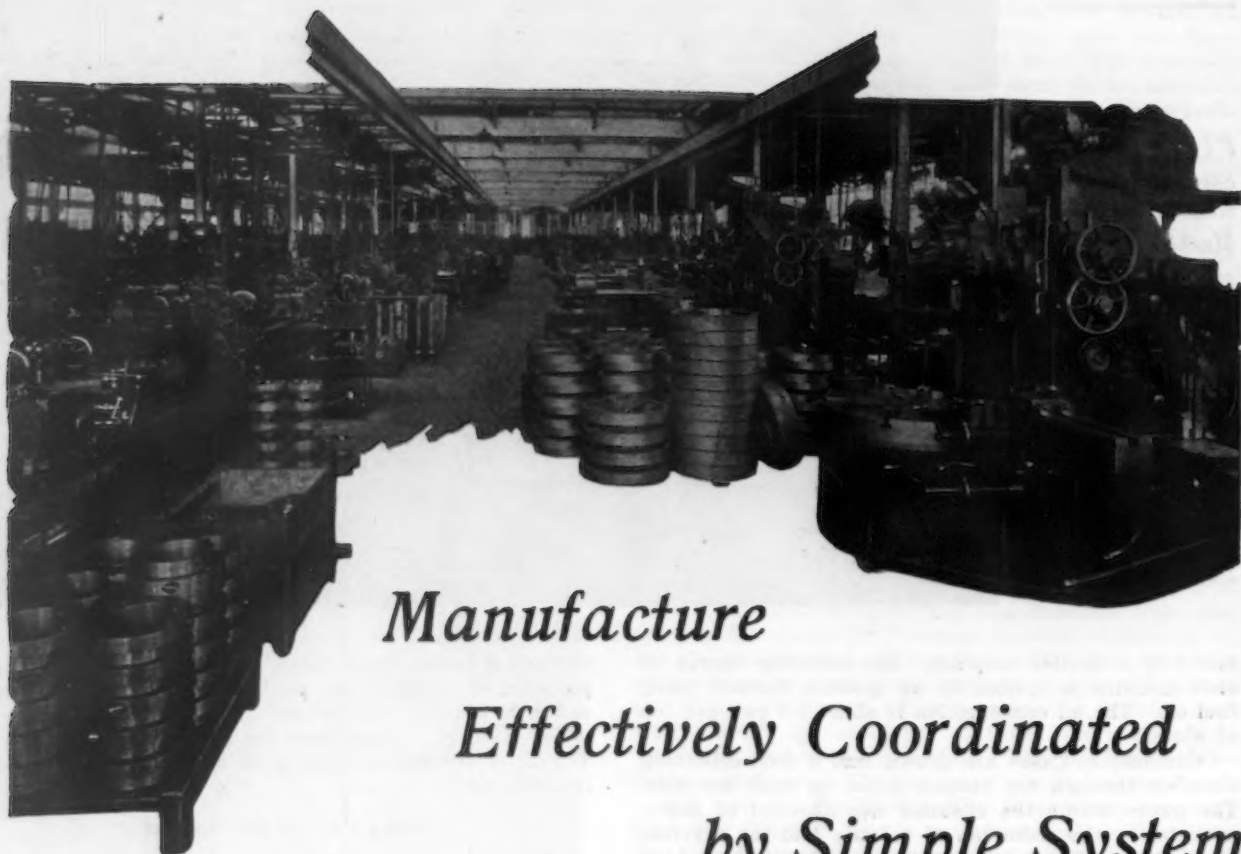
Finished sinter is discharged over stationary grizzly bars into railroad cars. The fines are collected in so-called return hoppers, fitted at the bottom with revolving table feeders. These feeders drop the material on to the cross conveyor coming from the storage bins. This conveyor is at all times covered with flue dust, which serves as a protective layer against the hot returns. In this way sinter returns again enter the stream of the material to be treated.

In flue dust, the carbon content is usually higher than is required for maximum sinter production. The returns, which consist largely of fine particles of sinter containing no carbon, serve to lower the average carbon

*(Concluded on page 243)*

*Fig. 2—Cast Iron Pug Mill, in Plant Shown at Top of Page, Which Prepares the Raw Material for the Sintering Process by Grinding It to Proper Size Before Delivering to the Ignition Strand*





## *Manufacture* *Effectively Coordinated* *by Simple System*

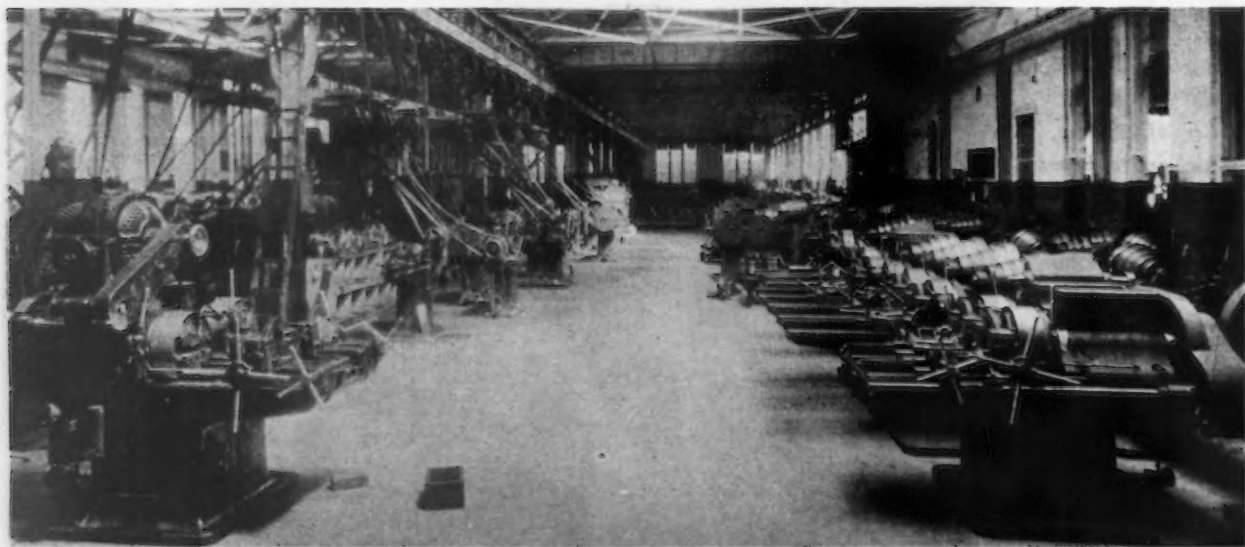
**I**T is generally recognized that system, although a basic mechanism of administration, may be elaborated to the stage of too much "red tape," which acts to slow up rather than facilitate production. Avoidance of such over-elaboration has been a fundamental consideration of the Landis Machine Co., Waynesboro, Pa., in developing a production order system for the coordination of its manufacturing operations.

At this plant production orders are issued and returns collected by a central department. Each manufacturing unit receives copies of orders to be manufactured and is responsible for executing its operations economically, the latter being watched closely by the general superintendent through current cost records. Production for the most part is in lots for stock. The amount of stock carried is based on the sales experience of the previous few years, tempered by considerations of the immediate future outlook as

arrived at by study of general conditions in the industries served by the company.

Manufacture comprises three more or less distinct divisions or departments according to products as follows: Pipe and bolt threading and cutting machinery, pipe die heads and chaser grinding machinery; chasers; die heads, marketed under the trade names of Land-Matic, Lanco, etc. Of the machinery, some 16 basic designs are produced and from these 300 different combinations, such as one, two or three-head machines, belt or motor drive, with or without lead screw, etc., can be furnished.

The machinery and pipe die heads, the production system connected with which is outlined in the following paragraphs, are manufactured in the general machine shop. The equipment in this shop is arranged according to the group plan, with milling machines in one group, turret lathes in another, etc. Manufacture is supervised by the general foreman



**A**S Machines Are Assembled They Are Sent to the Testing Department to Be Tested for Accuracy of Alinement, etc., on the Class of Work for Which the Machine Is Intended





and a number of assistant foremen in charge of operations on the various groups of equipment.

The company maintains a production engineering department, which, in addition to being responsible for tool design, jigs and fixtures, etc., also analyzes operations, makes up standard operation-sequence sheets, determines standard speeds and feeds for various classes of work and makes time studies for use in establishing bonus rates. In this connection it should be mentioned that all workers are on a standard hour rate, with bonus for completing the work within the standard time, and an additional bonus for work done in less than the set time.

#### Production Orders Issued by Central Department

In the case of the machinery and pipe die heads, the production for stock schedule is drawn up every three or four months. Manufacturing orders are issued and records of finished parts and machines are kept by a production order department, operated in connection with the cost department. Schedules for stock, as well as for sales, are submitted by the management to the production order department, which makes up the general manufacturing order shown in Fig. 1. Several copies of this order are made, one each for the secretary (in charge of sales orders), the erecting and other departments.

Detail manufacturing orders are then issued for lots of individual parts that make up the machines listed on the general order. These detail orders include a rough casting order for the foundry, and a "work tag," Fig. 2, for the machine shop, which authorizes that department to proceed with the machining of the castings, forgings and other material. Materials obtained from outside sources are requisitioned through the purchasing department.

The work tag, time tickets, blue prints and the operation sheets furnished by the production engineering department are then sent in a transparent envelope to the general machine shop foreman. The operation sheets, not shown, specify the sequence of operations for a given part, the sub-department and number of the machine on which the work is to be done, and the speed and feed to be used.

From the general machine shop foreman the envelope and its contents go to the assistant foremen in charge of the various divisions of the work. The latter see that all materials, tools, jigs and fixtures etc., are on hand for the prompt start of operations. When the assistant foreman is ready for material, he notifies the rough stores department, which delivers it immediately to the machines. This material has been assembled and held in readiness at the stores department, having been requisitioned by the production order department on the form shown in Fig. 3 at the same time that the detail orders were sent to the general machine shop. Jigs and fixtures are drawn ahead from the tool crib and set-ups are made in most cases by the workmen on the machines.

After machining, the parts are sent to the finish inspection department to be tested for size, and in

some cases for hardness. The latter tests are to determine the condition of case hardened and other heat-treated parts after the machining operations. As each lot is inspected, the results are reported to the production order department, which posts the information in its record of the finished parts available. The inspected parts are delivered to the finished stock department.

When issuing the detail manufacturing orders, the production order department also issues the store or stock requisition shown in Fig. 4. This lists the various parts and sub-assemblies needed for the complete machines. It is forwarded to the erecting department foreman, giving him the authority to draw the necessary parts and sub-assemblies for each lot of machines.

Erection of the machines is in a large department which, like other sections of the plant, is arranged for the convenient and rapid movement of materials. As individual machines are assembled they are sent to the testing department to be tested for accuracy of alinement, adjustment, etc.—on the actual work for which the machine is intended. The machine is then moved to the painting department, and finally to stock, the production order department being notified accordingly.

#### Perpetual Inventory Kept

A perpetual inventory of all rough material to be machined or otherwise processed, as well as of finished parts and sub-assemblies, is kept by the production order department on the cards shown in Figs. 5 and 6, respectively. Records pertaining to finished machines and die heads are kept in loose-leaf ledger form. This ledger shows the number and location in the plant of completed machines and other products. Shipments from stock are recorded in the ledger, and note is made of the name of the customer in order to have convenient data for use in case of repairs, or duplication of the order in the future.

Close attention has been given to the matter of cost records, the system established being simple and thorough, as in the case of the production order routine outlined above. Cost ledgers are tied in with the general accounting system. Cost comparisons are frequently drawn up by the cost department for the superintendent and other executives, who use this in the general control of operations. The system includes the comparative cost cards shown in Fig. 7, which are kept for every individual part going into each machine and die head. These records, maintained over a period of years, permit convenient comparison of current costs with those of former periods. In case of deviation from what has been established as the normal cost of any given manufactured part, the cost department notifies the superintendent on a form provided for this purpose. This form shows the abnormal cost for lots of parts as they are manufactured and permits the superintendent to remedy matters before or while the next lot is in production.

### Bricks with Bias Ends for Furnace Wall Construction

In the opinion of a great many engineers, one of the most difficult problems of furnace construction is to make fire brick stay "put" under actual working conditions. There is always the tendency for walls to loosen up and joints to open, resulting in heat losses, slag penetration and eventual disintegration. This problem of a stronger wall has been met by General Refractories Co., Philadelphia, by a unique shape called Biasbrix. As shown in the illustration, Biasbrix are laid up on an angle, one brick overlapping and tying together three others in a self-locking construction, that serves to produce a wall of unusual strength with tight joints.

Although different in shape, Biasbrix are found to meet requirements as readily as the ordinary straight brick in any thickness of wall from 4½ in. to 27 in. They seem to be particularly well suited for hollow wall construction, where a strong bond is of paramount importance.

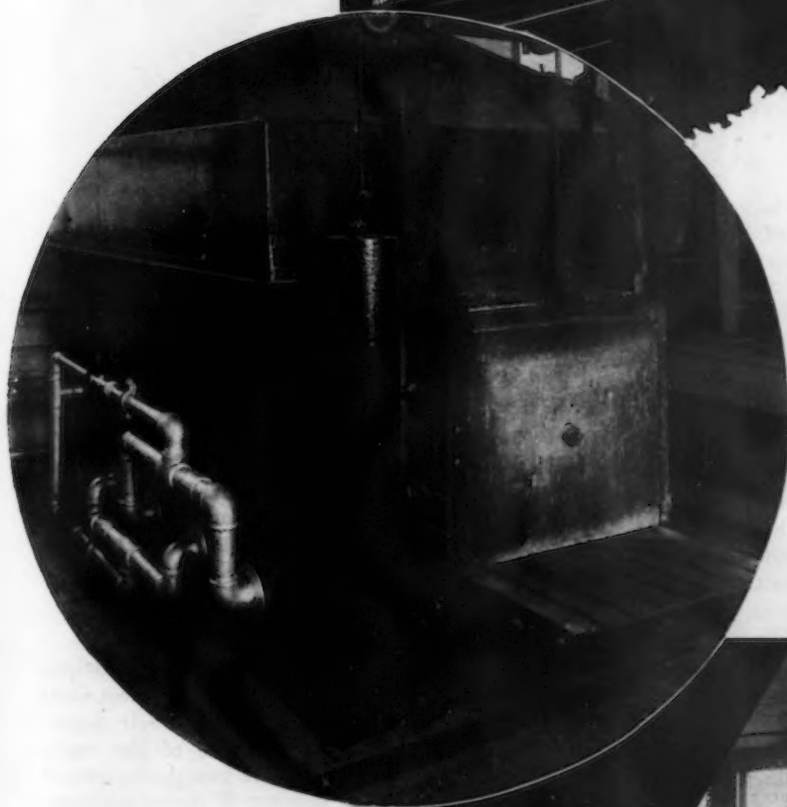
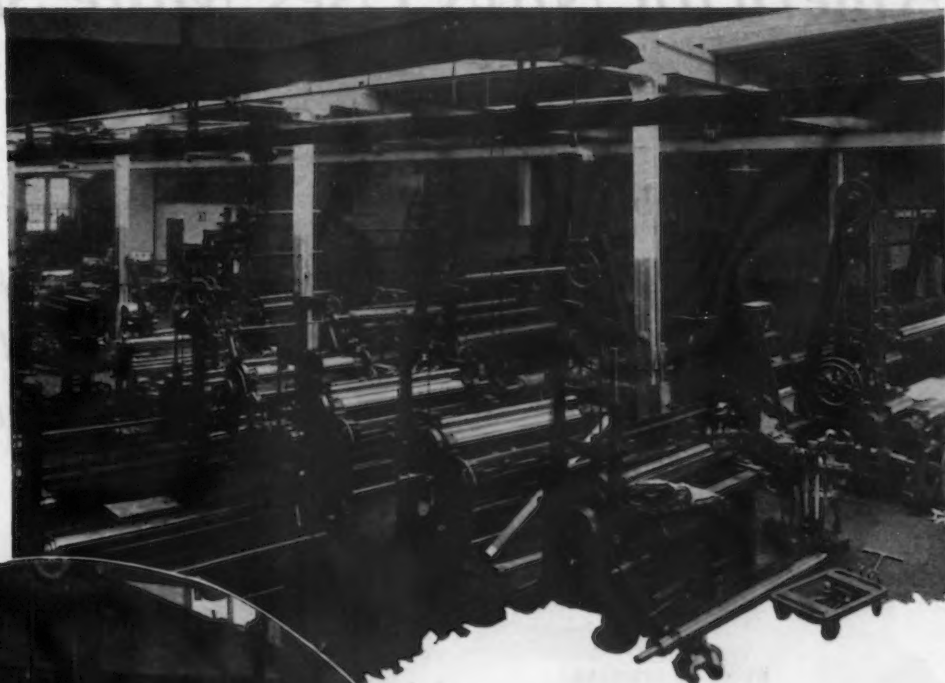


*Hollow Wall Laid with Biasbrix*



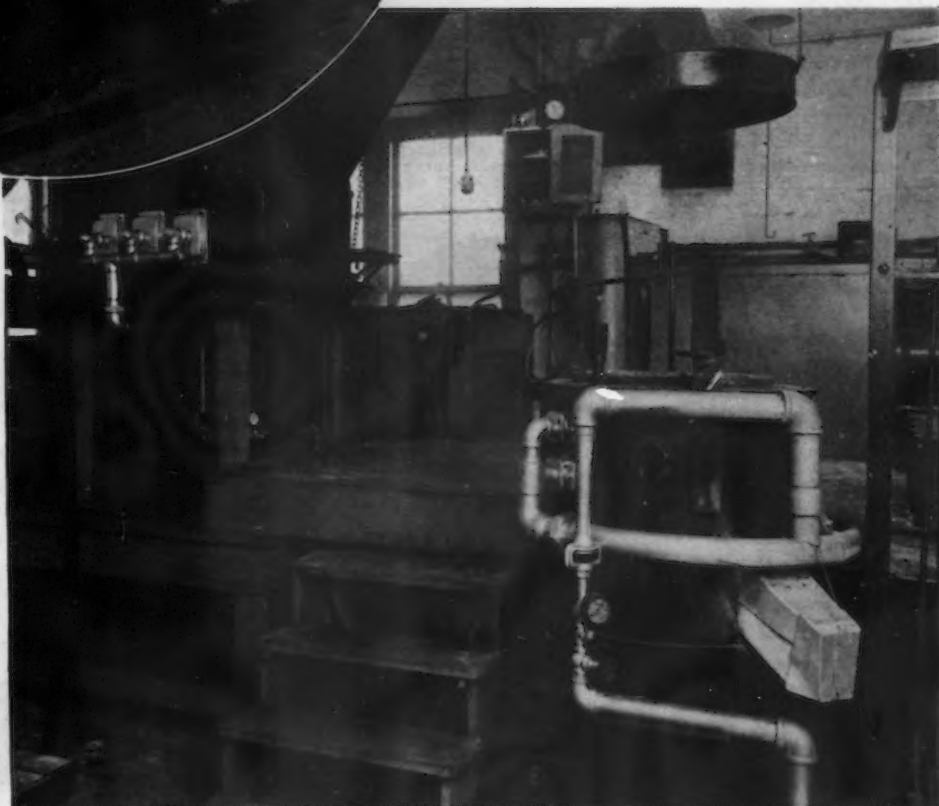
## Gas Hardening Furnaces in Brooklyn Plant

**T**HE Cameron Machine Co., Brooklyn, N. Y., makes slitting and roll winding machines. Some of its products are shown in this view of the assembly room of Camachines, as they are called in a coined name derived from the company's name.



**F**OR the pack hardening or carbonizing of the plating rolls, cutting cylinders, etc., the steel parts are packed in bone or bonite, in air tight pots, and then heated for varying lengths of time up to 17 hr., when they are cooled from 12 to 24 hr., depending on the size. They are then heated again in another furnace and quenched in brine and oil for the final hardening. Gas is used for fuel under the Surface Combustion system, employing refractories which are kept at incandescence by the gas combustion. The venturi tube method of control is shown. Marked economies over open flame combustion are claimed.

**A** GAS fired furnace is employed for hardening the high-speed steel tools for the machine shop. Lead pots, similarly fired, are used for heat treating the cutters and other high-speed steel. Recording pyrometers are fitted to all the furnaces. The piping is painted with silver paint, to give instant notice of any leaks, as gas discolors such paint.



# American Navy Uses More Sheet Steel

*Its Quality of Absorbing Vibration Without Damage an Important Feature—*



*Non - Splintering, Steel Sheets Find Many Uses All Over the Ships*

BY G. K. SPENCER\*

**S**HEET steel, indispensable in American industry, also plays an important part in the United States Navy. Thin and sturdily tough, it hums to the cadence of whirling dynamos and turbines, while it also holds its steady place under the strain and tension of gunnery concussions.

One month before this was written, the battleship Nevada, for the first time in a modern navy, fired her guns† dead ahead. Ships habitually fire to port or starboard, so that the recoil can be absorbed by the roll of the ship. But in firing dead ahead the ship cannot roll; it must "sit back upon itself," and absorb the shock within its confines. It is equivalent to the ship's actually being hit by the shell. The Nevada was chosen for the test, to discover if a modern battleship could fire dead ahead without seriously damaging herself.

When the Nevada had fired dead ahead, she sat heavy in the sea, her bows submerged, her gun crews stunned momentarily by being cast against the sides

\*Maritime Air Service, Oakland, Calif.

†These guns, of 14-in. bore, throw a 1400-lb. projectile at a muzzle velocity of 2700 ft. a sec. The kinetic energy, for one gun, is 70,800 foot-tons. Five guns bear dead ahead.—EDITOR.

of their turrets. But when the gun captains sang out through the voice tubes to the bridge, "Bore clear!" it was known that an American ship had successfully performed an internationally feared experiment. Now, if an enemy "crosses our T," or passes his fleet dead ahead of us, we know that we can fire on him.

Below decks the investigators found that all glass in the ship had been shattered, even wired glass. Slight strains were observed in beams and other pieces. But the sheet steel members had not yielded the fraction of an inch which was expected of them under the storm they endured.

## Sheet Steel Held Its Position

In the main control room the sheet steel partitions were well in place; in the torpedo rooms the sheet steel partitions had not so much as cracked their paint. And so with the sheet steel partitions of the radio rooms, the fire rooms, and on all the gun decks. Sheet steel holds. In moments of disaster it never splinters—quite an estimable quality where confined space



**A**BOVE the Sailor's Head Is a Sheet Steel Coping Which Wards Off Wind and Rain from the Destroyer's Bridge (Heavy Seas, Too, of Course). The navy has found that shells cannot splinter it

—  
Housings on Masts (at Head of Page) Are of Sheet Steel

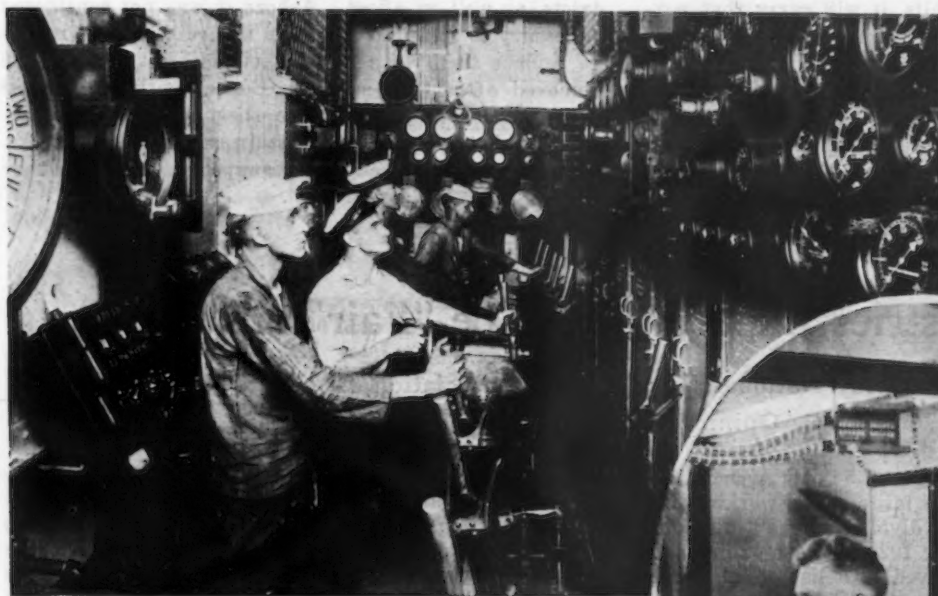


might cause accidents to assume greater proportions if splinters were to fly about.

A piece of sheet steel from a Pittsburgh plant was placed on a hill on one of the naval proving grounds recently and fired upon with shell, without splitting in any manner, the bits of shell simply holing it, but not splintering it. This vindicated the naval policy of using sheet steel for cabinets, files, desks and all ship office equipment. In the event of the ship being in action with an enemy and shell pouring through the spaces reserved for control offices, the desks can be crumpled into cruel masses without sending splinters through the air to the further injury of personnel.

were turned upside down in several fathoms of water, with their hulls torn miserably, heavy loss of life having attended the accident. Pictures of the wreck on the morning after it occurred demonstrated how thoroughly the ships had been destroyed by wind, water and rocks. And yet, the sheet steel desks from those ships are today doing duty on other ships. They were not even bent—by storm, wreck or salvaging crews. And they had to be detached by divers under water.

Your naval officer, after an arduous watch on deck, the bridge or the engine room, tumbles into a sheet steel bunk, made fast to the bulkhead in his room. The sailors pack their belongings in sheet steel lockers.



*IN Right Foreground Is Shown Sheet Steel Partition in Main Control Room of U. S. S. Tennessee. Minor partitions throughout the ship are of this material*

*SONIC Direction Finding Equipment (Below), Made with Sheet Steel Cabinet*



*NAVAL Mess Room (Left), Showing Sheet Steel Lockers. Each battleship carries many hundreds of such lockers*

As a consequence of this policy, and also because the Bureau of the Budget insists on the economical operation of the Navy, every piece of office equipment of all combat ships—battleships, light cruisers, destroyers, submarines—is of sheet steel. If an enemy never shells them, then the equipment will last as long as the ship. In fact, if naval ships were to be scrapped today, the sheet steel office equipment could all be dismounted, detached and placed in other ships. It is not intended in the naval estimates ever to replace office equipment in the combat ships.

#### **Desks, Lockers and Bunks of Sheet Steel**

Seven first line destroyers of the Navy were wrecked on the rocks at Honda Head, Cal., in 1923. The ships were thoroughly "done up." Some even

The old-time sea chest is gone. In its place, the neat sheet steel locker possesses the dual advantage of indestructibility and not attracting vermin. Long rows of such lockers are mounted in all ships except aircraft and submarines.

A destroyer of the first line utilizes sheet steel for its bread, potato and vegetable lockers, and for its partitions below decks. All water and wind sheds on destroyers were recently converted, at the various navy yards on the Pacific and Atlantic coasts, to sheet steel construction.

Previously it had been termed objectionable to place sheet steel above destroyer bridges, to shelter personnel from wind and seas. Canvas was used to create an overhead which would serve as a wind and water shed. After the tests with shell on sheet steel, all destroyers

of the battle fleet on the Pacific Coast took turns going to the Bremerton Navy Yard to receive sheet steel overheads on their bridges. Sheet steel will not splinter in war and in peace it will last as long as the ship. As recently as three years ago our destroyers used canvas overheads on their bridges. Today they are all of sheet steel.

#### Observation Posts and Sounding Apparatus

Simultaneously, the observation posts in the cage masts of the battleships were converted to sheet steel, light and durable. Protection from enemy fire in the masts is naturally not seriously considered. It does not matter how heavy the sides of the observation lofts may be—if an enemy shell hits, it will carry that particular post away. In fact, lightness may save it more than weight, in the event of a hit.

With the advent of the sonic depth finding apparatus, by which vessels may make soundings by casting an oscillation toward the bottom of the sea and receiving it in another instrument, the Navy turned to sheet steel for the construction of this equipment.

It did likewise with the direction finding apparatus, by which submerged microphones bring to a central collecting instrument the sounds made by the propellers of other vessels moving at sea. By this instrument, we discover if other ships are near, what type of vessels they are, and the speed and direction in which they are moving. The casements for these fittings are of sheet steel, the first two of the type being fitted on the Zeilin and Corry, of the battle fleet destroyer squadrons.

After the tests, within the fighting forces of the Navy, of sheet steel equipment for the office or "control" personnel, it was decided to make the ruling effective throughout the Navy, ashore in the Naval Districts, as well as afloat. Ashore it was not considered necessary to scrap all the desks immediately, but rather to replace them with sheet steel material as they are removed after long service. Consequently, all Naval Districts ashore today utilize sheet steel filing equipment, while retaining to a certain extent wooden desks. These latter will gradually disappear on land as they have at sea.

## Metal Industries Expect 1928 to be "Fair" or "Good"

Business Survey by National Metal Trades Association Discloses Many Optimistic Opinions on Outlook for This Year

**M**EMBERS of the National Metal Trades Association, comprising many of the large metal-working industries of the country, are divided in their opinions as to the business outlook for 1928 between "fair" and "good." Of the replies received to a list of questions sent out from the association's office, 52.2 per cent predicted 1928 would be a "good" year, 34.75 per cent inclined to the view that it would be a "fair" year, while the remainder were divided between "extra good" and "poor" 7.25 per cent for the former and 5.8 per cent for the latter.

Many of the replies indicated reasons for expecting better business and only a few expressed the view that 1928 business conditions would not be so good as those in 1927. Broadly, the opinions indicate a belief that 1928 will be fairly prosperous, with no extraordinary increases or decreases in sales or operating volumes.

Among the conditions upon which optimistic expectations for 1928 are based are: Good crops, relatively cheap money, a flexible credit structure, small inventories, better possibility of export, low commodity prices and increase in stock orders; while actual orders booked and inquiries received recently, together with the possibility of increased automobile production, were taken into account also.

#### Some Companies Expect to Make Up for 1927 Recession

"Conditions in related trades exert a large influence on the prosperity of the metal trades," says a bulletin in which the association's questionnaire is analyzed, "and it is interesting to note that even in those industries faced with the most adverse conditions reported, there is still an underlying expectation of a steady flow of business. For instance, members associated with the coal mining and oil producing industries, both affected by overproduction in 1927, report good prospects for 1928. On the other hand, members in the automobile field report an excellent outlook for 1928, due to low production in 1927 and to the absorption of used cars. The re-entry of Ford into the market, coupled with new designs announced by other manufacturers, are factors expected to take up the slack caused by the 1927 recession.

"Members in close touch with the railroads and the textile industries report increasing activity in their markets, which leads to a general feeling of improved conditions for 1928. Members supplying the building trades do not feel an equal degree of optimism on the assumption that the general building shortage has been overcome. On the other hand, the extent of building

permits being issued for 1928 erection opens the door for larger possibilities in metal building materials."

Replies to the questions sent by the association to its members showed that fully 50 per cent of those expecting a fair or good year base their expectations upon general economic soundness of American industry as a whole, and upon the special conditions obtaining in various members' own industries. About 30 per cent base their expectations upon the outlook in industries which they serve, while 15 per cent base their hopes on orders and inquiries already received. A few mention the political situation as affecting their business.

Some members reported a larger volume of business in 1927 than in 1926 with less profit, while others reported a smaller volume of business with greater profit. An increase in productive efficiency of plants was reported by 67 per cent of those replying, and the most important reasons underlying such increase in efficiency were: New or improved machinery, incentive plans of wage payment for workmen and supervisors, improved methods and processes, new buildings and equipment, better supervision, better tools, changes in personnel and training of employees.

Increased productive efficiency reduced the number of employees in 73 per cent of the cases where new methods or equipment have come into use, while 10 per cent definitely stated the saving in labor amounted to 5 to 10 per cent. A good many replied that increased quality production absorbed any saving brought about by greater plant efficiency.

Suggestions for improving working conditions and stabilizing business included the following:

- Better education and training for all employees
- Closer contact between management and men
- General refusal to accept business at less than profit-making figures
- Stop regulatory legislation
- Better wages to employees through use of incentive plans of wage payment
- Better purchasing practices
- Standardization
- Consolidations
- Greater cooperation between employers
- Production control
- Budgeting
- Renovating plant during slack productive periods
- Improved cost finding
- Personnel research
- Better supervision
- Better employment methods
- Exercise caution in expansion
- Developing new machinery



# Inspection of Aircraft Tubing

Mild Carbon Can Be Separated from Alloy Steels  
After Normalizing by Testing Individually  
for Rockwell Hardness

BY HORACE C. KNERR\*

**I**N the manufacture of seamless steel tubing such as is used in aircraft construction, and for many other purposes where accuracy and high quality are essential, the first operation is to pass the hot billet through a piercing mill, from which it emerges as a short, crudely formed tube or hollow billet. This is subjected to one or more stages of hot rolling over a rod, during which it is reduced to about 3 in. diameter,  $\frac{1}{4}$  to  $\frac{3}{8}$  in. wall, 15 ft. or more long.

## Manufacture Requires Repeated Handlings

Subsequent stages of manufacture consist in cold drawing through a die and over a mandrel to successively lighter walls and smaller diameters. The tube must be annealed after each pass to remove the hardness produced by cold work, and must be pickled after each annealing to remove scale or oxide. After pickling and rinsing the tube is coated inside and out with a lubricant, preparatory to the next cold pass. A tube of thin wall and small diameter may go through this series of operations as many as 25 times before reaching its final dimensions.

As the tubes are elongated on each passage through the die, they soon become too long for the draw bench or annealing furnace, and must be cut in two. These halves again are drawn and in their turn are cut in two when they reach a limiting length. From a single original billet weighing 75 to 100 lb., as many as a dozen or twenty tubes of thin wall may therefore be produced.

Many lots of tube in different stages of manufacture are passing through the cold drawing mill at one time. The lots are handled in bundles, consisting of a few dozen to a few hundred tubes, according to their

size and weight. Each bundle is identified by a tag and a job card, on which its progress is recorded. The utmost care is given to the segregation of tubes of various types or analyses of steel in their progress, but in spite of this, human fallibility sometimes results during the many handling operations in placing a tube of one analysis in the wrong bundle, after which it loses its identity. This chance is not confined to the tube manufacturer's plant, but exists also in the user's shops and stock rooms.

## Segregation of Stock

In order to avoid the possibility of mixing tubing of ordinary commercial grades with those of the higher grades required for aircraft use, one of the Summerill Tubing Co.'s mills is devoted exclusively to the production of the latter. It is a complete unit in itself, including draw benches, annealing furnace, pickling tanks and necessary auxiliaries.

The aircraft industry, including the Army, Navy and commercial builders, have at present standardized on seamless tubing in three types of composition, as listed in the table of specifications. Any or all of these steels may be in progress through the mill at one time.

Because of its satisfactory fabrication qualities, and its excellent physical properties either as cold drawn, slightly tempered after drawing, normalized, or oil quenched and tempered, chrome-molybdenum steel is finding wide application, not only in the construction of aircraft, but in a wide variety of industries where requirements are exacting.

The two alloy steels do not differ widely in their physical properties, either as drawn or after like heat treatments. If one or more tubes of one type became mixed with tubes of the other type, and heat-treated accordingly, the properties obtained while not the best would not cause danger. Moreover, no trouble should

\*Consulting metallurgical engineer, Summerill Tubing Co., Bridgeport, Pa.



Section of Cold Drawing Mill  
for Making Thin-Walled Seamless  
Tubing

arise from mistaking an alloy steel tube for one of mild carbon steel, since its physical properties would be superior.

But if a tube of a mild carbon steel became mixed with a lot of either 3½ per cent nickel steel or of chrome-molybdenum steel, serious results might follow, since its strength would be much less than that of the alloy steel for which the structure was designed. Therefore it is imperative to apply a final test to *each individual tube* in a lot of alloy steel of either type, to insure that no mild carbon steel tube is present. (Of course, the same situation exists with tubing, bar stock and finished parts in the aircraft manufacturer's plant.)

#### Positive Identification of Nickel Steel

There is a very simple, convenient and reliable test for the identification of nickel steel. This consists in putting a drop of 50 per cent nitric acid on the cleaned surface, soaking up the drop after reaction is completed (in about thirty seconds) on a sheet of filter paper or white blotting paper, and applying to the wet spot on the paper a few drops of a di-methyl-glyoxime solution. This is made of 1 gm. di-methyl-glyoxime, 60 cc. of 80 per cent acetic acid, 30 cc. concentrated ammonia and 10 gm. ammonium acetate. If nickel is present the spot will turn strawberry pink; in the absence of nickel, the spot is reddish brown. The indication is quite distinct and positive when the test is properly performed, and a large number of pieces can be tested in a short time.

Unfortunately, no simple, rapid and thoroughly reliable chemical test seems to be available for identifying chrome-molybdenum steel.

#### Hardness of Normalized Chrome-Molybdenum Tube

Consideration has therefore been given to the hardness test as a means of identification. Neither the Brinell nor the scleroscope test is suitable for use with thin-walled tubing, but the Rockwell hardness test is well adapted to the purpose.

Preliminary experiments showed that no clear distinction could be drawn between the Rockwell hardness of mild carbon and chrome-molybdenum steel tubes, as they came from the mill after drawing. However, after normalizing, i.e., heating above the critical range and allowing to cool in the air with free circulation, chrome-molybdenum steel tubes of aircraft sizes show a Rockwell hardness of 90B or over, while mild carbon steel gives a hardness below 80B. (When it is not practicable to normalize the whole tube or its end, a sample may be cut, normalized in a small laboratory furnace and tested.)

The investigation verifying this test over the range of thickness and diameter of tubes used in aircraft construction has additional interest in showing the physical properties obtainable by normalizing these steels.

#### Tests of Thin-Walled Tubes

Nine mild carbon steel tubes and nine chrome-molybdenum steel tubes were tested in three diameters representative of aircraft sizes (½, 1 and 1½ in.), each diameter in three wall thicknesses (B.W.G. 20, 16 and 11; respectively 0.035, 0.065 and 0.120 in.). Tubes were taken at random from stock, suitably numbered and cut into sections 10 in. long.

A series of eighteen specimens, as above mentioned, was normalized at each of the following temperatures: 1400 deg. Fahr., 1490, 1580 and 1660. The specimens were held at temperature for 15 min., withdrawn individually and supported horizontally about 2 ft. above the floor so as to permit free circulation of air. They cooled to blackness within 1 min. or less. The tubes were not tempered after normalizing.

Some very light scale was produced during cooling. The scale on the chrome-molybdenum steel peels off freely, while that on the carbon steel adheres. This serves as a fair but not very positive distinction. It is important to remove this scale both inside and out at the point tested.

Rockwell hardness tests in triplicate using 1/16-in. ball, 100 kg. load, were taken on all specimens, including a set from the tubes in the original condition (as delivered by the last drawing bench). Individual readings on any specimen usually fell within plus or minus 2 points of the average.

For thin-walled tubes, a special anvil was used,

consisting of a rounded head supported on a curved arm in such a way that the end of a tube may be slipped over the head, which then supports the wall from the inside. The head has a radius of about ¼ in., but is slightly flattened on top, so that it makes the least possible indentation on the inner surface of the tube. Another special anvil for small tubes consisted of a piece of hardened drill rod, 3/16 in. diameter, ½ in. long, extending horizontally from an upright arm. Readings taken with these anvils on a test block of known hardness are two to five points lower than with a flat anvil, due to a scarcely perceptible indentation made by the anvil on the under side. However, the results on such special anvils are consistent, so that a correction can be made. No other equally practicable method was found to test thin-walled tubes.

No specimen of the annealed carbon steel lot showed a hardness exceeding 80B. Three specimens of annealed chrome-molybdenum steel lot showed a hardness less than 90B, which were set aside as doubtful for further investigation.

No consistent relation between hardness and tensile strength of normalized tubes was observed, except the following general ones: Rockwell hardness over 90B corresponds to tensile strength over 95,000 lb. per sq. in. Rockwell hardness under 80B corresponds to tensile

	Mild Carbon	3½ Per Cent Nickel	Chrome-Molybdenum
Specification—			
U. S. Army Number . . . . .	57-180-1	.....	57-180-2
U. S. Navy Number . . . . .	49-T-1	49-T-2	.....
S. A. E. Steel Number . . . . .	1025	2330	4130 X
Chemical Composition—			
Carbon . . . . .	0.20 to 0.30	0.25 to 0.35	0.25 to 0.35
Manganese . . . . .	0.50 to 0.80	0.50 to 0.80	0.40 to 0.60
Phosphorus (max.) . . . . .	0.045	0.040	0.040
Sulphur (max.) . . . . .	0.050	0.045	0.045
Nickel . . . . .	.....	3.25 to 3.75	.....
Chromium . . . . .	.....	.....	0.80 to 1.10
Molybdenum . . . . .	.....	.....	0.15 to 0.25
Minimum Physical Properties—			
Tensile strength	55,000	125,000	95,000
Yield point (dividers) . . . . .	36,000	100,000	60,000
Elongation in 2 in., per cent.	22	12	12
Heat treatment..	Normalized or As Drawn	Quenched and Tempered	Normalized or As Drawn

strength under 75,000 lb. per sq. in. This, however, is a check on the satisfactory strength of normalized chrome-molybdenum steel tubes.

#### Normalizing Temperature Range

When the mechanical properties were plotted against normalizing temperatures for tubes of a given diameter, little effect on the hardness or tensile strength values was found within the range of 1490 to 1660 deg. Fahr. At 1400 deg. Fahr. there is a general tendency for all values to fall. This temperature is too low for satisfactory results. Any temperature between 1500 and 1600 deg. Fahr. would appear to be satisfactory for normalizing, although narrower limits could readily be maintained.

In general, hardness and strength tend to increase with decreasing wall thickness, but there are numerous exceptions to this rule, due perhaps to slight variations in composition, or other factors. Within the range of ½ in. to 1½ in. at the various gages and temperatures, diameter has little effect on the strength of tubes of either analysis under test.

Chemical analyses of each tube under test were made. The carbon steel tubes ranged from 0.17 to 0.31 per cent carbon, and each gave negative results in a qualitative analysis for chromium, molybdenum, nickel, vanadium and tungsten.

It is significant that one tube, namely 1½ in. by 0.120 in., from those supposed to be chrome-molybdenum steel tubes, contained only 0.06 per cent chromium and 0.07 per cent molybdenum and was therefore defective in composition. The four specimens from this tube showed inferior physical properties, and Rockwell hardness in the neighborhood of 80B. The proposed test therefore served to distinguish this tube from the good ones.





*Inspection of Chrome-Molybdenum Tubing Before Shipment. Each tube is normalized and given Rockwell hardness test*

Another tube from the chrome-molybdenum steel lot showed erratic Rockwell hardness, although the tensile properties were excellent and the composition normal. Under the Rockwell inspection test this tube would have been withheld, subject to further test or other disposition by the manufacturer, and therefore without risk to the purchaser.

#### Conclusions

The results indicate that, within the range of diameters from  $\frac{1}{4}$  in. to  $1\frac{1}{4}$  in., and thicknesses from 0.015 in. to 0.120 in.:

1. After normalizing, that is, allowing to cool freely in air, from a temperature between 1490 and 1650 deg. Fahr., tubes of 4130X steel may be distinguished from tubes of 1025 steel which have been mixed with them by means of a Rockwell hardness test. The former will exceed 90B, while the latter will be less than 80B. Any tubes of intermediate hardness may be regarded as doubtful, subject to further verification, or rejected.

2. Without normalizing, the Rockwell hardness does not clearly distinguish between tubes of these two steels.

3. Rockwell B hardness is not directly proportional to tensile strength for either type of steel, but if the

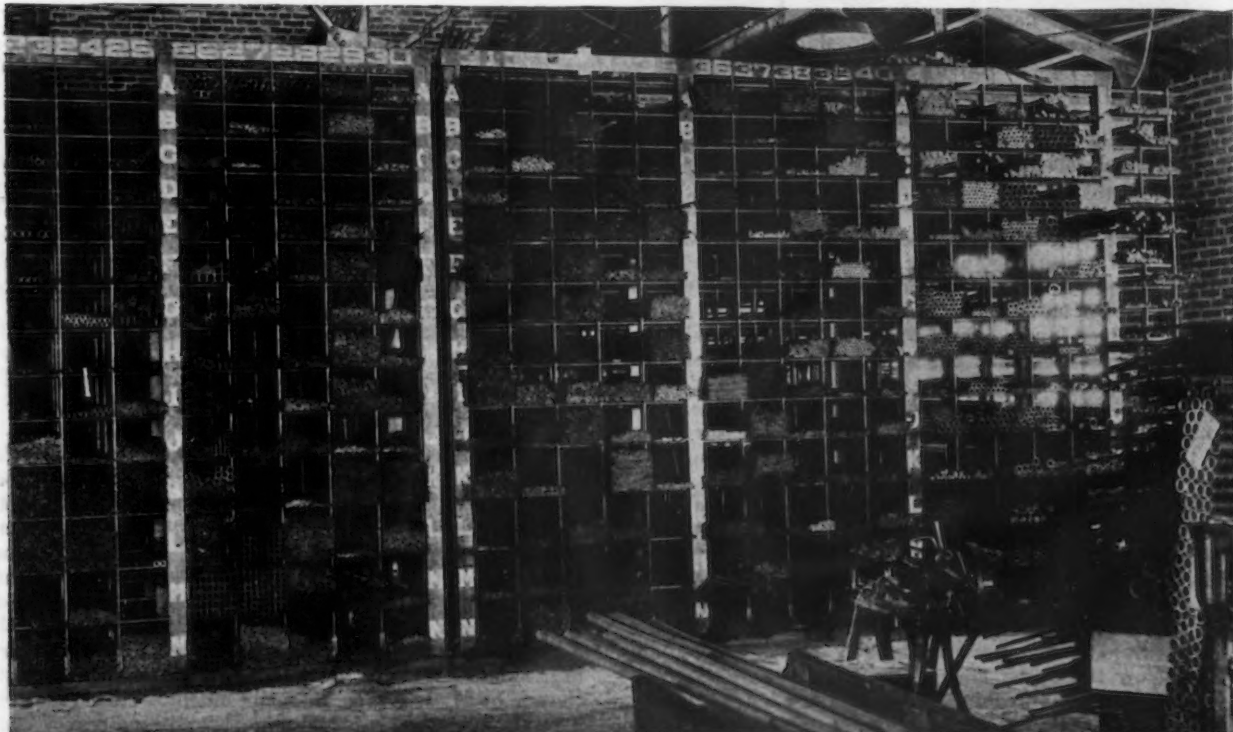
hardness is above 90B, after normalizing at 1490 to 1660 deg. Fahr., the tensile strength of 4130X tubes is above 95,000 lb. per sq. in.

4. The normalizing range is wide, variations in temperature between 1490 and 1660 deg. having little effect on hardness or tensile values. A temperature between 1525 and 1575 deg. Fahr. is to be preferred, so that scale will be a minimum.

5. The test is rapid, inexpensive and can be performed by a relatively unskilled operator. Errors, should any occur, are likely to cause the rejection of good tubes due to low hardness readings, rather than the acceptance of inferior tubes.

6. This test is not suitable for separating chrome-molybdenum steel tubes from tubes of high carbon or other alloy steel, as these would probably have similar hardness values after normalizing.

The Rockwell hardness test described has been approved by the Navy Department, and is being applied to every tube of chrome-molybdenum steel No. 4130X, before shipment by the Summerill Tubing Co. After more than six months of this practice, during which thousands of tubes have been tested, there has not been an instance when the test failed in its reliability when properly performed.



*Stock Racks in Warehouse. A wide variety of sizes and shapes, often in more than one analysis, is demanded by the trade*

## NEW MILLING MACHINES

### Dual Feed Control—Either at Front or Rear of Table—An Outstanding Feature

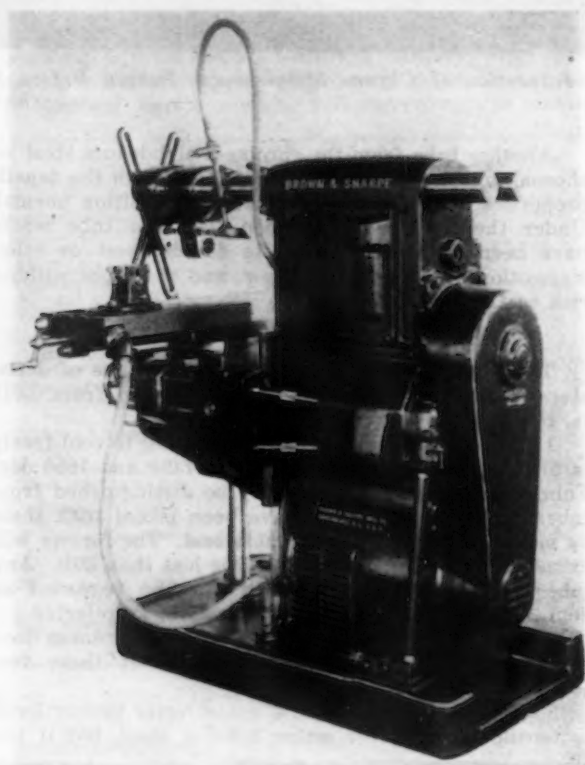
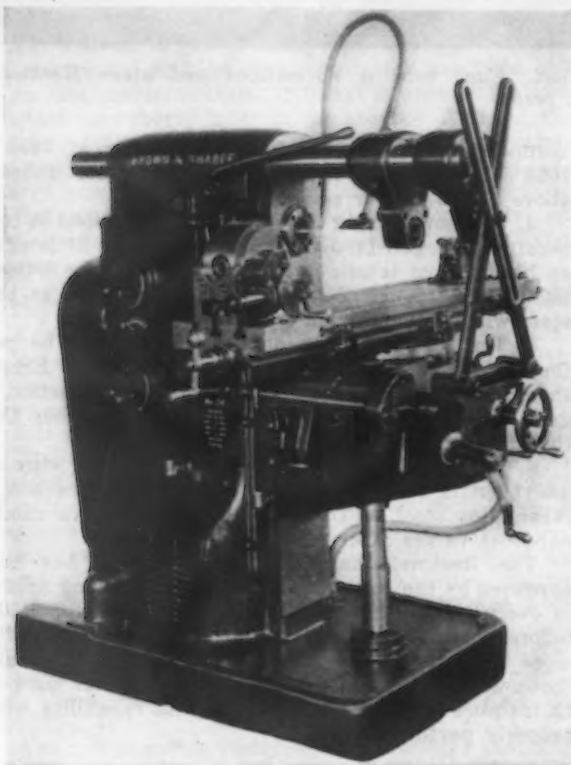
A NEW line of milling machines with features that simplify control and facilitate operation has been brought out by the Brown & Sharpe Mfg. Co., Providence. The line is designated as the Standard and includes Nos. 2-A and 3-A universal and Nos. 2-B and 3-B plain machines.

Features intended to facilitate operation include a single lever for speed changes (in two series); and a single lever for feed changes at each of the operating positions, front and rear of the table. Direct reading dials indicate rate of feed and speed engaged. Power fast travel is provided in all directions, this being gear driven through safety clutch. Directional feed engagement levers for all feeds are provided at front and rear

enamel to prevent grit in the casting getting into the lubricating system, while the complete inclosure of the column mechanism prevents the entrance of foreign matter. The knee mechanisms are lubricated by a pump which automatically forces oil to all moving parts. The entire saddle mechanism and table bearings are oiled from a single conspicuously placed well at the front.

The cutter coolant system is designed to provide either a flood supply or a thin stream. In either case, it is delivered at low pressure and the pump arrangement is simple and requires little attention. The pump is always immersed and automatically stops when the spindle stops.

The machines are of rugged construction and all assemblies are of unit construction. It is equipped with a double overarm and the standardized spindle end and is adapted for motor drive. Sliding gear feed and speed transmissions; all-gear drive, with heat-treated alloy steel gears; and anti-friction bearings



*Feed Changes Are Made by Rotating the Lever at the Front or at the Rear of the Table. One revolution in either direction accomplishes a change, and direct reading dials indicate the feed in use. Power fast travel is provided on all three feeds*

of table, and the knee is arranged for clamping from front or rear of the table.

The dual feed control permits the operator to make feed changes from either the front of the machine, in the normal operating position, or at the rear of the table, for face milling, boring, etc. Changes are made by the simple rotation of a single lever and the feed in use is shown on a direct reading dial directly above either control lever. Only the feed in use is shown, which is a convenience not only for the operator, but also for the foreman, who can see at a glance if suitable feeds are being used for the work in process. All controlling levers are always thrown in the direction of the movement of the table, which further simplifies operation of the machines.

One revolution in either direction of a single lever on the left side of the machine gives a change of spindle speed, and a direct reading dial above the lever indicates the speed for which the machine is set. Two series of speeds are available, the change from one to the other being made by shifting the back gear lever. Spindle reverse is controlled by a small handle just below the speed change lever.

Oiling of the machine is by means of a simplified system. All units in the column and driving clutch are automatically supplied with filtered oil and a gage is provided to indicate whether the pump is working. The inside of the column is coated with a special

from the driving pulley to the spindle, as well as in the feed and power fast travel mechanisms, are other features. The spindle runs in phosphor bronze bearings. Power is transmitted through a dry type multiple disk clutch, which is self-compensating for wear. The elevating screw is of one-piece construction, completely inclosed, which construction is said to provide unusual accuracy in vertical adjustments.

### Steel Foundry Operates 100 Days Without Lost-Time Accident

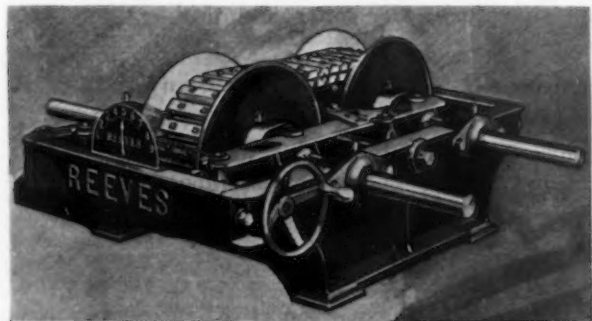
Employees of the Union Steel Casting Co., Pittsburgh, recently observed the successful completion of 100 days without a lost-time accident with a safety rally at the plant. Safety drives by the company were inaugurated in November, 1926, and the 100-day period, ended Nov. 30, 1927, established a new record. At present the plant employs 400 men, and the effectiveness of the campaign is further stressed by the fact that jobbing steel foundries are generally classed as "extra hazardous." Safety work at the Union plant is in charge of D. J. Evans, superintendent. He is assisted by K. C. Wickline, safety engineer, and by a safety committee consisting of all department foremen and their assistants, together with the officers of the Employees' Beneficial Association.



## Improved Model of Reeves Variable-Speed Transmission

Improved features intended to provide additional strength, greater compactness and higher efficiency have been incorporated recently in the variable-speed transmission of the Reeves Pulley Co., Columbus, Ind.

A new double-block center-pull V-belt is said to provide more than twice the surface contact against the driving disks of the transmission, assuring maximum strength, quietness and a more efficient transmission of power. Through this double-block construction the center line of pull is at the center of the belt body, and the load is evenly distributed above and below. The end tips of the belt block are shaped by a special process to conform to the curved surface of the driving disks, providing a snug fit which is said to assure positive



*A New Double-Block Center-Pull V-Belt Has Been Provided and Bearing Housings Are Now in the Frame Sides*

flow of power at all speeds. High efficiency is also attributed to the fact that the belt can be run at slack tension, which lengthens the life of the belt and reduces the load on the driving parts of the transmission.

The new transmission is equipped with a splice-block of the double-pin interlocking type, with cast aluminum blocks and tool steel plates. The machine is shorter and narrower than previously. Reduction in width has been accomplished by setting the frame bearing housings in recessed grooves in the frame sides. This brings the bearing housings closer together and, in addition to the saving in space, makes the drive shafts stronger and more rigid. The overall length of the transmission has been materially reduced by eliminating excess clearance between the ends of the disks and the frame. The feet of the new frame are planed to accurate dimensions.

Improvements have also been made in lubrication. The bore of the disk hub is now grooved spirally, providing more uniform lubrication to all parts of the disk hub bore, shaft, and driving keys. This is said to provide free sliding of the disks on the shafts and to facilitate shifting of speeds. Standard equipment includes a speed indicator which is mounted on the transmission frame.

## New England Foundrymen Elect Officers

The New England Foundrymen's Association held its thirty-second annual meeting and dinner on Wednesday evening, Jan. 11, at the Exchange Club, Boston. The only business transacted was the election of officers for 1928, the evening being given over largely to entertainment. H. S. Chafee, Builders' Iron Foundry, Providence, R. I., retiring president, presided until his successor, Charles F. Miller, Universal Winding Co., Providence, was elected. Carl H. Neumann, Union Mfg. Co., New Britain, Conn., was elected vice-president. George H. Gibby, Gibby Foundry Co., East Boston, was re-elected treasurer, and Fred F. Stockwell, Barbour-Stockwell Co., Cambridge, Mass., reelected secretary, positions they have held many years.

The executive committee for the year consists of Ernest F. Stockwell, Barbour-Stockwell Co.; William W. Brierly, Millbury Steel Foundry Co., Millbury, Mass.; H. A. Lincoln, Sullivan Machinery Co., Claremont, N. H.; Luther J. Anthony, Glenwood Range Co., Taunton, Mass.; and Charles A. Reed, Rogers Brown & Crocker Brothers, Inc., Boston.

## Yale K24C Tractor Has 4-Wheel Drive and Sturdy Frame

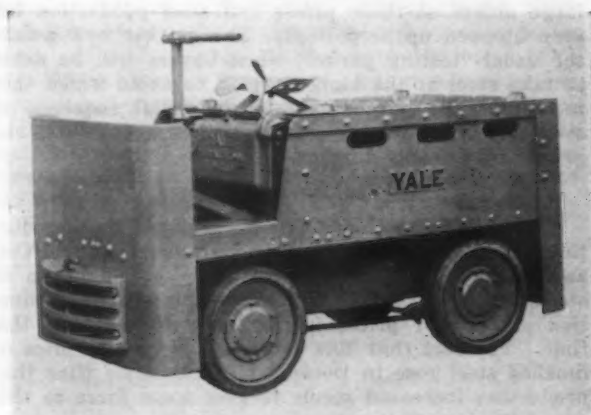
A four-wheel drive tractor has been brought out by the Yale & Towne Mfg. Co., Stamford, Conn., to meet the demand for an electric tractor of heavier type. The machine is capable of an ultimate drawbar pull in excess of 4000 lb., depending upon road surface conditions. It will operate a continuous drawbar pull of 1000 lb. without danger of overheating. By driving all four wheels of the machine, it is possible to get the maximum of traction with a given overall weight. This feature is particularly advantageous when the tractor is driven outdoors, between buildings, over ice and snow. It has the same advantage when operating over floors covered with oil.

With four-wheel brakes, not only has the machine power to pull on slippery surfaces, but it has also the power to stop. As the brakes operate through the differentials, they properly equalize, regardless of the condition of the lining. A spring automatically applies these brakes when the operator either raises his foot pedal or steps off the machine. Disarrangement of the linkages between foot pedal and brake lever would in no way hazard the driver. Should this linkage fail, the brakes would immediately apply and give warning that something was wrong.

Steering is through a lever handle arranged to fold up out of the way if the driver wishes to leave his seat. Construction of this folding linkage is rugged. The steering knuckles on all four driving wheels are equipped with ball flush bearings. This is important, as it permits the driver to whip his machine quickly in tight places, thereby gaining every inch of the turning radius of which this machine is capable.

Two standardized driving units are connected in parallel at the controller. Employment of standard units allows a maximum of interchangeability in the hands of the customer. He need maintain but one set of repair parts for all of his Yale truck and tractor models. This machine is regularly furnished with a 48-volt motor, and a 23 to 1 gear ratio.

The frame construction is unique in that the pressed steel side members or main supporting members are



*Both 4-Wheel Drive and 4-Wheel Brakes Feature This Electric Tractor*

strong and integral parts with the axle yokes. This gives the frame a depth of 18 in., producing a member capable of standing jolts and jars in addition to the bending stresses to which it is subjected. The bumpers are heavy, being made of ½-in. plates. A triple bumper casting front and rear gives a range of coupling height to meet most requirements.

The Aluminum Co. of America has bought two 45,000-kva. water-wheel alternators and seven 15,000-kva. transformers from the Westinghouse Electric & Mfg. Co., and two 45,000-hp. water-wheels and the governors from the Allis-Chalmers Mfg. Co., for its Calderwood, Tenn., hydroelectric development.

The National Foreign Trade Council will hold its fifteenth annual convention at Houston, Tex., April 25-27. O. K. Davis, India House, Hanover Square, New York, is secretary.

# Business Analysis and Forecast

BY DR. LEWIS H. HANEY

DIRECTOR, NEW YORK UNIVERSITY BUREAU OF BUSINESS RESEARCH

## Current Statistical Data, Considered Independently of Trade Opinion, Indicate That:

Steel ingot output (adjusted) increased sharply in December and probably will continue upward.

Unfilled orders showed the largest increase in three years, indicating, on the basis of past history, that prices are due to advance.

Pig iron production continues below normal, but still is large in comparison with ingot output and price recovery does not seem imminent.

Finished steel prices are still too low for a proper relation with their raw materials.

**I**N a good many respects the conditions now prevailing in the iron and steel industry are like those which usually are found at the bottom of a downward swing, just preceding an upward turn. It is usual in this industry for production to expand before prices rise. This is particularly true in the case of finished steel prices. In 1921, the production of steel ingots showed a rising rate about seven months before the average price of finished steel began to advance, and in 1924 there was a similar period of about four months. At present the reasons for this lag are being illustrated.

Sensing the apparent fact that steel prices have gone about as low as can be expected, buyers have placed large orders at those prices and steel production has been stepped up accordingly. The market now awaits the usual "testing period" when buyers will be asked to take steel at the higher prices, to avoid which they recently made purchases. If the usual sequence of events is to follow, the market will stand the test and prices will advance further.

### Higher Prices Expected

We have from time to time suggested that production has been so well adjusted to consumption, and that as a result there has been so little accumulation of stocks, that the usual lag between increased production and higher prices is not likely to occur at this time. The fact that THE IRON AGE composite price of finished steel rose in December at the same time that production increased seems to give some force to this suggestion.

It is also true, however, that there has been no such severe curtailment of production as occurred in 1921, or even in 1924, and that consequently there is no great

shortage. It may well follow that, while the decline in prices has been checked earlier than in most other similar periods, there will also be a less sharp expansion in the demand for steel, and that the anticipated rise in prices will not gain such momentum as would otherwise be the case. For example, we see no prospect whatever of such an advance in steel prices as occurred in 1922.

### Production Curve in Steel Is Headed Upward

**D**ISREGARDING trade sentiment and the hopes and doubts which it involves, the cold statistical record looks favorable. One depending entirely on the showing made in the first chart would necessarily draw this conclusion. It should be noted that the chart gives a truer picture of the trend of the steel industry than can be secured from the usual statistical statements. The merely seasonal variations which occur from month to month are practically eliminated. In the case of steel production, allowance is made for the normal annual rate of growth which occurs over a long period. Each of the "curves" is measured from the average for an appropriate period of years. Thus, without attempting any forecasting, the chart is important as revealing the present true underlying position and trend of the industry.

It shows that the December average daily production of steel increased more sharply than in any previous month in over a year. Our adjusted index is 89.8 per cent of normal, against 85.1 per cent in November. It compares with 103.7 a year ago, but last year the trend in December was downward. In view of the sub-normal rate of production, and the infrequency with which the production curve reverses itself after

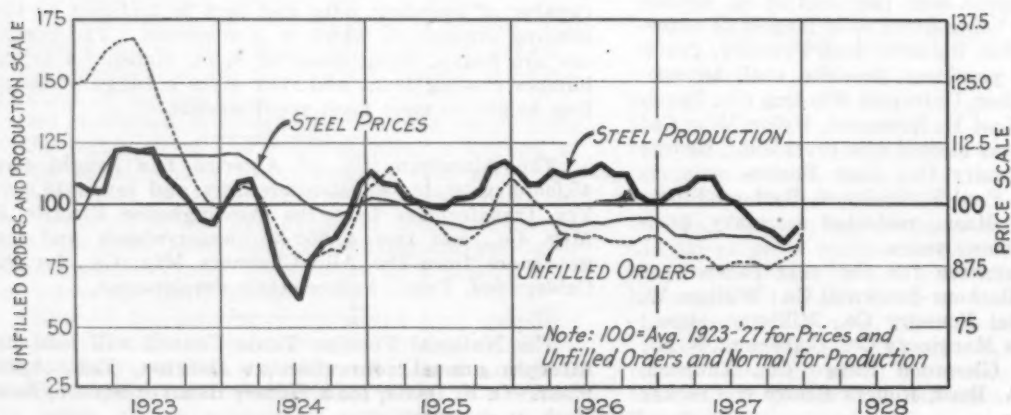
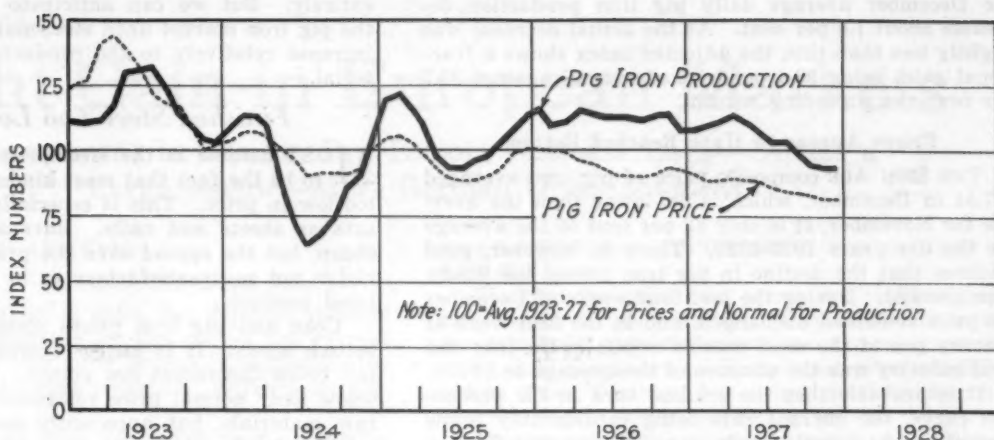


Fig. 1—Steel Production Increased More Sharply in December Than in More Than a Year. Prices, after Sagging for months, seem to have turned upward. Unfilled orders have made up all the loss of the earlier months in 1927



Fig. 2—Smaller Reduction in Output and in Prices of Pig Iron May Indicate an Approaching Upward Turn for Both. No real recovery in the pig iron market is anticipated before steel production advances considerably



such a turn as occurred last month, it seems highly probable that the curve will continue upward.

#### Unfilled Orders Made Up 1927 Loss

This probability is increased by the sharp rise in unfilled orders. Usually the unfilled orders of the Steel Corporation gain about 4 per cent in December, and such a gain may be called a seasonal occurrence. Actually there was an increase of about 15 per cent last month, and the adjusted index becomes 87.6 per cent of the average for the last five years, in comparison with 79.3 per cent in November and with 87.4 per cent in December, 1926. Unfilled orders have made up all of the loss during 1927. In recent years the adjusted index of unfilled orders has risen in December only twice—in 1924 and in 1925. In both these cases, however, production was above normal and unfilled orders were considerably higher than they now are. Also steel prices were higher and had advanced more in the preceding month or two. It thus seems reasonable to expect that this time a further increase in unfilled orders will occur.

But the fact that the price situation is still in doubt, and that several important products are none too strong marketwise, still leaves a question as to whether there will be any large expansion in forward buying. As yet the activity in the chief consuming industries as a whole has not clearly turned upward.

As to prices, the December average of finished steel prices was 91.5 per cent of the average for the last five years. This compares with 91.1 per cent in November. The advance is small and is not firmly established. Judging both by present conditions and by the per-

formance of the steel market under similar circumstances of the past, the upward trend for a few months is likely to be slight. But the increase in unfilled orders, coming at the same time that production is subnormal, and the fact that steel is cheap in comparison with the general run of commodities, indicate that any changes in the average are likely to be upward.

#### Pig Iron Continues Below Normal

WE present in this issue a revised chart of pig iron production and prices. The normal trend of production has been recomputed and has been based on the average daily production. Of course, the merely seasonal variations have been eliminated. The production curve thus represents the most up-to-date presentation of the true trend of the monthly output of pig iron. The estimated normal monthly output is taken to represent 100 per cent. The price curve is based on THE IRON AGE composite price of pig iron and the average for the five years 1923-1927 is taken as 100.

The close general parallelism between production and price is at once apparent. Usually a decline in prices precedes or accompanies a decrease in production. Usually, too, a rise in price follows or accompanies an increase in production. Almost always, when production rises above the normal level, weaker prices result. It will be noted that during 1926 and 1927, when production was continuously above normal, prices were almost continuously sagging.

In December the average daily production of pig iron was around 87,000 gross tons. This was a decrease of over 1000 tons from the November rate, and was 9 per cent below the line of normal growth. Usually

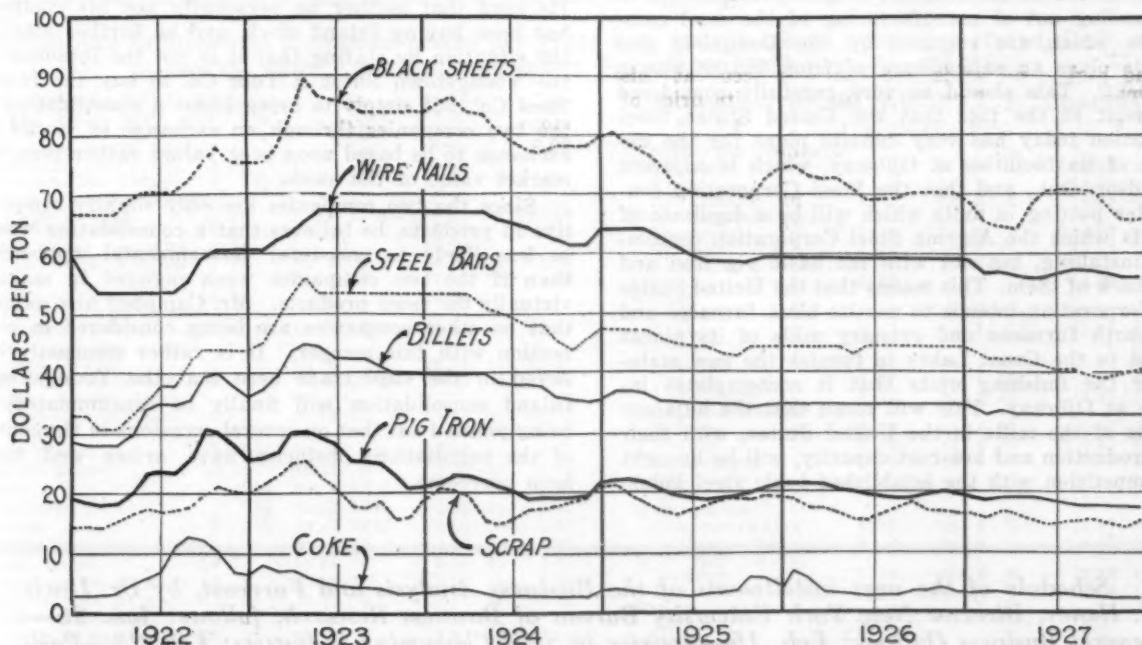


Fig. 3—Finished Steel Prices (in Particular, Sheets, Nails, Plates and Bars) Continue Too Low with Regard to Semi-Finished and Raw Materials. Readjustment of the price structure is not likely to come from further reduction in fuel, pig iron and semi-finished lines

the December average daily pig iron production decreases about 1.6 per cent. As the actual decrease was slightly less than this, the adjusted index shows a fractional gain, being 93.4 per cent of normal against 93.2 per cent the preceding month.

#### Prices Appear to Have Reached Bottom

THE IRON AGE composite price of pig iron averaged \$17.54 in December, which is 6c. lower than the average for November. It is only 82 per cent of the average for the five years 1923-1927. There is, however, good evidence that the decline in pig iron prices has finally been checked. During the last four weeks of December the price remained unchanged, and in the first week of January one of the most notable events in the iron and steel industry was the advance of the average to \$17.59.

It is probable that the gradual turn in the production curve, the current rate being considerably below normal, marks a real change in trend, and that further gains will occur. Exactly the same remark applies to pig iron prices.

We think it is to be regretted that the production of pig iron has not been curtailed further, and that it is still a little large in comparison with steel production. The relatively sharp upturn in steel production has, however, reduced the disparity between the two, and another month of expansion in steel, with the pig iron output remaining about steady, would wipe it out

entirely. But we can anticipate no real strength in the pig iron market until steel-making requirements do increase relatively to the production of this raw material.

#### Finished Steel Too Low in Price

MOST notable in the steel price structure continues to be the fact that most kinds of finished steel are too low in price. This is especially true of such products as sheets and nails. Bars and plates, also, are cheap, but the spread over the price of the raw material is not so unsatisfactory as in the more highly finished products.

Coke and pig iron prices seem to be definitely at bottom levels. It is hardly conceivable that they can fall below the recent low points. Billets are but little below their normal price relationship as regards these raw materials, but apparently are well stabilized at existing levels. It seems that we may safely assume that fuel, pig iron and semi-finished steel will not decline further.

But the prices of sheets and nails are also as low as they can be expected to go in comparison with their raw materials. The spread between the two in November and December was about as little as it has been in any recent year. Lower prices for these products seem impossible unless semi-finished steel prices are reduced.

#### Canadian Steel Company Plans \$10,000,000 Expansion; Wants Higher Tariff

TORONTO, ONT., Jan. 17.—The Algoma Steel Corporation, Sault Ste. Marie, Ont., has under consideration a program of plant improvements to cost \$10,000,000 to \$12,000,000 and has at the same time applied to the Advisory Tariff Board of the Dominion Government for increased tariff protection on three items, alloy steel, spring steel and axle steel for automobiles and structural steel sections above 35 lb. per yd.

J. D. Jones, vice-president of the company, in making this announcement, said:

"We have a definite proposal before the Government that if it will give us adequate protection on these structural sections we shall immediately undertake to extend our facilities and permit our mills to roll sections up to and including 15-in. I-beams and channels, and these facilities will be placed in operation six months after the Government puts its stamp of approval on our appeal.

"This is one of the first and most important steps in the rounding out of manufacturing of the steel commodities which are required by the Dominion, and which involves an expenditure of from \$10,000,000 to \$12,000,000. This should be very carefully considered on account of the fact that the United States Steel Corporation today has very definite plans for the extension of its facilities at Ojibway, which is adjacent to Windsor, Ont., and that the Steel Corporation contemplates putting in units which will be a duplicate of the units which the Algoma Steel Corporation contemplates installing, but not with the basic pig iron and ingots back of them. This means that the United States Steel Corporation intends to use its blast furnaces and open-hearth furnaces and primary mills of its plants adjacent to the Great Lakes to furnish the raw material for the finishing units that it contemplates installing at Ojibway. This will mean that the adjacent facilities of the mills in the United States, with their large production and low-cost capacity, will be brought into competition with the established basic steel indus-

tries of Canada, namely, those at Sault Ste. Marie and Hamilton, Ont., and Sydney, N. S."

The expansion plans of the Algoma Steel Corporation include changes which will make possible the extensive use of the low-grade iron ore to be found in the Algoma district. A power plant development on the Soo River is a part of the building program.

#### Proposed Youngstown-Inland Merger Still Under Negotiation

YOUNGSTOWN, Jan. 17.—The proposed merger of the Youngstown Sheet & Tube Co. and the Inland Steel Co. is still under negotiation, but according to James A. Campbell, president of the former company, it was nearer a conclusion two weeks ago than it is now. In his latest statement on the matter, Mr. Campbell expresses the opinion that there has been altogether too much publicity about the negotiations and also too much guessing about the probable terms of the transaction. He says that neither he personally nor his company has been buying Inland stock, and he further clarifies the situation by stating that it is not the intention of the Youngstown Sheet & Tube Co. to buy the Inland Steel Co., but simply to bring about a consolidation of the two companies through an exchange of stock, the exchange to be based upon book values rather than the market value of the stock.

Since the two companies are only slightly competitive in products, he believes that a consolidation would be less likely to encounter Governmental opposition than if the two companies were engaged in making virtually the same products. Mr. Campbell also asserts that no other companies are being considered in connection with this merger. It is rather commonly believed in the steel trade here that the Youngstown-Inland consolidation will finally be consummated, it being pointed out that on several occasions in the course of the negotiations obstacles have arisen and have been overcome.

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*Schedule of the next installments of the Business Analysis and Forecast, by Dr. Lewis H. Haney, Director New York University Bureau of Business Research, follows: Jan. 26—General Business Outlook; Feb. 16—Activity in Steel Consuming Industries; Feb. 23—Position of Iron and Steel Producers.*

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# Slight Gain in European Markets

Improvement in France, But Export Business Lags—Cartels a Large Factor—More German Unemployment

(By Cable)

LONDON, ENGLAND, Jan. 16.

THE pig iron market is quiet, but domestic demand is expected to increase by the end of the current month. Export is still poor generally, although the Continent has bought some hematite. Foreign ore continues dull.

Finished iron and steel demand is poor except for some moderate sales of small rounds and bars. Plate mills are in need of orders, but there is no substantial demand. Rail mills are fairly well occupied.

December exports of pig iron were 38,116 gross tons, of which 3720 tons went to the United States. Total December exports of iron and steel were 351,795 gross tons. Total exports of iron and steel for 1927

were 4,200,000 tons and imports of iron and steel were 4,400,000 tons.

Tin plate is quiet and prices are inclined toward easiness for forward delivery. Some mills are sold out for first half, but others are less favorably situated. Galvanized sheets are moderately active as a result of orders from Bombay, but other markets are small buyers. Black sheets continue quiet.

Continental iron and steel markets are quiet, but prices are fairly well maintained, as works are well booked with orders. The German Wire Rod Cartel has advanced its price 2s. 6d. (61c.) per ton. German domestic prices of iron and steel are advancing. A South African order for German rails is reported to total 65,000 tons of rails and 35,000 tons of steel sleepers, a total value of £500,000.

## GERMAN UNEMPLOYMENT GAINS

Market Continues Active—Mills Expect Efficiency to Offset 8-Hr. Day

BERLIN, GERMANY, Jan. 2.—Producers in the Rhineland are of the opinion that the first few months of this year will show a continuation of the heavy domestic demand for steel that has been so marked during the past year. Later, however, a decline in domestic consumption would not be unexpected. Unemployment is increasing rather rapidly. In the first half of December the total of unemployed advanced to about 1,000,000 from 750,000.

As the year closed the steel market was quiet, following the decision to postpone the effective date of the 8-hr. day law and the consequent removal of the threat of suspension by rolling mills. While suspension was still a possibility consumers hastened to build up stocks as a protection. There has been a sharp decline in business in the building trades, and unemployment in the construction unions has increased from 5 per cent to about 25 per cent in the past two months.

Prices of steel products are unchanged. Mills will endeavor to keep costs at the present level, even with

the 8-hr. day, by more efficient operation, but in many quarters an early advance in prices is regarded as a possibility. Following the settlement of a disagreement between the Pig Iron Syndicate and the Roehling interests, which was responsible for reductions in prices of foundry iron a few months ago, the market has advanced 4 to 6m. (\$1 to \$1.50) per ton.

In the International Steel Cartel the Central European group of producing countries, led by Austria and Czechoslovakia, has expressed a desire to withdraw from membership. This group greatly increased its output in 1927, and heavy penalties for overproduction are expected in 1928. Production by the cartel in the second and third quarters of last year totaled 16,344,515 metric tons, while the combined quotas for that period were 14,643,000 metric tons.

## Reparations Deliveries Aid German Foreign Trade

HAMBURG, GERMANY, Jan. 3.—Deliveries by German manufacturers on reparations account are evidently proving of considerable aid in developing foreign markets, according to statements by various companies. These deliveries, which have been made for the most

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.87 per £ as follows:

Durham coke, del'd.	£0 17½s.		\$4.27
Bilbao Rubio ore*	1 0½		4.99
Cleveland No. 1 fdy.	3 7½		16.44
Cleveland No. 3 fdy.	3 5		15.83
Cleveland No. 4 fdy.	3 4		15.59
Cleveland No. 4 forge	3 3½		15.46
Cleveland basic (nom.)	3 15	to £3 15½s.	18.27 to \$18.39
East Coast mixed...	3 10½		17.17
East Coast hematite	3 11		17.29
Rails, 60 lb. and up	7 15	to 8 0	37.75 to 38.96
Billets	6 0	to 6 10	29.22 to 31.66
Ferromanganese	13 10		65.75
Ferromanganese (export)	13 0	to 13 5	63.31 to 64.53
Sheet and tin plate bars, Welsh	5 7½	to 5 15	26.13 to 28.01
Tin plate, base box.	0 18	to 0 18½	4.39 to 4.45
Black sheets, Japanese specifications.	13 5	to 13 10	64.53 to 65.75
C. per Lb.			
Ship plates	7 12½	to 8 2½	1.66 to 1.77
Boiler plates	10 10	to 11 0	2.28 to 2.39
Tees	8 2½	to 8 12½	1.77 to 1.99
Channels	7 7½	to 7 17½	1.60 to 1.71
Beams	7 2½	to 7 12½	1.55 to 1.66
Round bars, ¾ to 3 in.	7 5	to 7 15	1.58 to 1.69
Steel hoops	10 10	to 11 0	2.28 to 2.39
Black sheets, 24 gage	10 5	to 10 10	2.23 to 2.28
Galv. sheets, 24 gage	13 0	to 13 5	2.82 to 2.88
Cold rolled steel strip, 20 gage, nom.	14 0	to 14 5	3.04 to 3.10

\*Ex-ship. Tees, nominal.

## Continental Prices, All F. O. B. Channel Ports (Per Metric Ton)

Foundry pig iron (a)			
Belgium	£3 1s.	to £3 2s.	\$14.85 to \$15.10
France	3 1	to 3 2	14.85 to 15.10
Luxemburg	3 1	to 3 2	14.85 to 15.10
Basic pig iron (nom.)			
Belgium	2 18	to 2 19	14.13 to 14.38
France	2 18	to 2 19	14.13 to 14.38
Luxemburg	2 18	to 2 19	14.13 to 14.38
Coke	0 18		4.39
Billets:			
Belgium	4 7	to 4 7½	21.19 to 21.31
France	4 7	to 4 7½	21.19 to 21.31
Merchant bars:			
Belgium	4 17	to 4 18	1.07 to 1.08
France	4 17	to 4 18	1.07 to 1.08
Luxemburg	4 17	to 4 18	1.07 to 1.08
Joists (beams):			
Belgium	4 8	to 4 10	0.97 to 0.99
France	4 8	to 4 10	0.97 to 0.99
Luxemburg	4 8	to 4 10	0.97 to 0.99
Angles:			
Belgium	4 17½		1.08
½-in. plates:			
Belgium (a)	6 4	to 6 5	1.37 to 1.38
Germany (a)	6 4	to 6 5	1.37 to 1.38
¾-in. ship plates:			
Belgium	5 19	to 6 0	1.32 to 1.33
Luxemburg	5 19	to 6 0	1.32 to 1.33
Sheets, heavy:			
Belgium	6 1		1.34
Germany	6 1		1.34

(a) Nominal.

part to Rumania, Yugoslavia, Greece, Italy, France and Belgium, have provided a good method of advertising German products. As an example, it is pointed out that German typewriters were practically unknown in Italy until a large reparations order was executed. Now Italy is purchasing about one-third of its total imports in Germany.

American typewriters are largely used in Yugoslavia, but recently an order was placed for 2100 German machines to be applied to reparations account. It is said that German locomotives have been introduced into South Africa, Egypt and other countries which have bought elsewhere in the past. German manufacturers of equipment of all kinds are being invited to seek reparations orders, as they generally lead to future purchases that compensate for the initial losses incurred because of delivery on reparations.

## GERMAN CARTEL FINE HIGH

### Report Shows German Penalty for Over-Production Still \$4 a Ton—France Receives Refund

HAMBURG, GERMANY, Jan. 3.—The report of the International Steel Cartel for the second and third quarters of 1927 has been published. Although Germany was promised a reduction of fines for over-production to \$1 per ton, provided exports did not exceed 28 per cent of the total German output, the balance sheet of the cartel shows the former fine of \$4 per ton.

Over-production figures in this report are: Germany, 1,061,252 metric tons; Belgium, 159,180 metric tons; Luxemburg, 35,749 metric tons, and the Saar, 101,369 metric tons. France was again under its quota by 438,029 tons. The following comparison is based on a payment of \$1 for every ton of steel produced, \$4 per ton for excess production, and 2 per ton refund for under-production:

Cartel Member	Production Payments	Fines for Excess	Distribution
Germany .....	\$8,165,246	\$4,245,008	\$9,023,204
France .....	4,128,471	.....*	6,516,410
Belgium .....	1,851,680	646,720	2,415,885
Luxemburg ....	1,251,249	142,996	1,734,797
Saar .....	947,869	405,476	1,208,361

\*France received a refund for production under the quota of \$876,058.

The net loss to Germany, after receiving the funds distributed to members, is equivalent to 1.74m. (43c.) for each ton of steel produced; the loss to Belgium, 0.16m. (4c.) per ton; to the Saar, 0.65m. (16c.) per ton, and to Luxemburg, 1.14m. (28c.) per ton. France received refunds equivalent to 1.32m. (33c.) per ton of steel produced.

### Germany Making Agreements to Exchange Coal for Ore

HAMBURG, GERMANY, Jan. 3.—The agreement between the United Steel Works Corporation and the Austrian Alpine Montangesellschaft, under which there is an exchange of German coke and coal for about 60,000 tons of Austrian iron ore a month, is to be further extended. Negotiations have also been started with Sweden for a similar agreement, under which a fixed tonnage of iron ore would be exchanged for coke and coal. Such agreements are also being discussed with French producers.

### Germany Divides Turkish Tube Order with France

HAMBURG, GERMANY, Jan. 3.—The German Tube Syndicate has booked an order from the Turkish Government for 12,000 tons of tubes. As a result of an agreement with French mills, the latter will receive 4000 tons of the total order. British competition for this business was keen, and the difference between the British and German bids is reported to have been small.

## FRENCH BUSINESS IMPROVES

### Export Trade Still Quiet—Reestablishment of Comptoirs May Permit International Agreement

PARIS, FRANCE, Jan. 3.—The business outlook for the next few months is viewed with considerable optimism by most producers of iron and steel. Stocks of consumers have been reduced to a rather low level, and prior to the holidays some important purchasing was being done, which is expected to continue during the first quarter. The financial condition of the country is better, and legal stabilization of the franc is expected before many months. Prices are consequently firmer than for some time.

Foreign trade continues in moderate volume, but prices are showing a slight downward tendency on some products. The export market in rails has been favorably influenced by the recent sales of the European Rail Makers' Association, which has booked about 75,000 tons for Argentina and 60,000 tons for South Africa.

Since the failure of negotiations for the formation of international selling syndicates for semi-finished material and beams, because of lack of organization among French mills, efforts have been made to revive the national agreements on heavy rolled products which existed in 1921. These negotiations have been successful and, according to reports, these reorganized associations will be functioning soon. This is considered a step favorable to the organization of the international syndicates.

**Pig Iron.**—Domestic business has been good, and the base price of phosphoric foundry iron advanced 5 fr. per ton to 425 fr. on Jan. 1. No change in prices of hematite iron is expected. Exports of pig iron have gained, and foundry iron is firmer at £3 2s. 6d. (\$15.22) per ton, f.o.b. Antwerp.

**Semi-Finished Material.**—Buying has been light, and export prices are nominal. The domestic market is also quiet, with prices showing some softness.

**Finished Material.**—Buying has been heavier than usual at this season, possibly as a result of the reports that prospects for the formation of selling syndicates are better. Believing that, with such syndicates in existence, minimum base prices might be established at once, buyers are willing to enter into contracts at the present level. Beams are slightly firmer for export at £4 7s. to £4 9s. per ton (0.96c. to 0.97c. per lb.), f.o.b. Antwerp, and small lots are reported to have been closed at as high as £4 10s. per metric ton (0.98c. per lb.). Steel bars are steady and unchanged at £4 17s. to £4 17s. 6d. per ton (1.07c. to 1.08c. per lb.), f.o.b. Antwerp. The light sheet market is improving domestically, but export sheet business is still small.

### German Enforcement of 8-Hr. Day Faces Many Obstacles

WASHINGTON, Jan. 17.—While the arbitration decision announced by the German Ministry of Labor in an effort to enforce the 8-hr. working day has not as yet been formally accepted by either steel makers or the workers, there is a general impression that both parties will accept, according to a radiogram received by the Department of Commerce from the commercial attaché at Berlin. It is expected, however, that the period of tension will continue over several weeks.

Meanwhile there has been some localized trouble, notably at the Groebitz plant of the Mitteldeutsche Stahlwerke, in which the workers deserted the mills at the end of an 8-hr. shift. Operators thereupon announced that the plant was to be closed down and along with it the Riesa plant. Under the terms of the arbitration the Sunday holiday in the steel industry is limited to 12 hr. On the other hand, the overtime premium is set at 25 per cent, or double the previous rates. The decision also provided for a general increase of 2 per cent in the wage scale and included provision for compensation for the time lost during 1927 in effecting the shortening of working hours. The most important phase of the situation at this time, the radiogram says, is operating costs.



## CARTELS A TRADE FACTOR

This Form of European Competition Needs Careful Watching, Says Dr. Klein

WASHINGTON, Jan. 17.—The extensive character and ramifications of European steel cartels, described as formidable weapons designed to meet the competition of the American steel industry, were explained by Dr. Julius Klein, director of the Bureau of Foreign Commerce, Department of Commerce, when he appeared before a House subcommittee of the Committee of Appropriations. These cartels, said Dr. Klein, were intended to offset the American industry not simply as to uniformity of sales policies, market quotas and prices, but also "with an agreement as to vital factors of more economical production through interchangeability of technical personnel, patent rights, and related matters."

Dr. Klein appeared before the subcommittee to seek appropriations for the bureau for the fiscal year 1929. While the subcommittee in its report made adverse recommendation regarding Dr. Klein's proposal for an increase in the number of commodity trade commissioners, it recommended an increase in appropriation over that proposed by the Bureau of the Budget.

Dr. Klein emphasized the growing European competition and urged the necessity of increasing the specialized staff of the bureau to meet the situation as it exists and as it promises to develop, pointing out that it is becoming greater in intensity. He listed numerous commodities which are "cartelized" in Europe and are conspicuous in the American field of export. He said that steel, of course, is one of the biggest items of American export trade.

So far as the work of the bureau in general is concerned, Dr. Klein said, there are two or three developments which will require "very careful attention."

### Stiffening of European Competition

"The first," he declared, "is the unmistakable evidence of a stiffening of European competition, notably in the development of cartels or combinations, of which there are press announcements almost every week. This is one of the outstanding trade factors that we must watch this next year, and I earnestly hope the committee will give it most careful consideration."

"I found, for example, on the Pacific Coast the greatest alarm regarding the steel situation because of the competitive difficulties. Recently there has been a very marked increase in European exports of steel to the Pacific Coast by way of the Panama Canal. The importation of German and Belgian steel has jumped in some cases nearly 100 per cent in the last 12 months to certain points on the coast; and this development is typical, I think, of what we may expect in certain lines of industries affected by these cartels or these international trusts."

### Greatest Alarm Over International Cartel

"Not until the cartel became international was it a source of serious alarm to us," said Dr. Klein. "Now what is happening? Europe is much concerned because of this enormous advantage that we have with our great domestic market and this vast possibility for mass production, and consequently it is striving rather blindly toward comparable advantages. That is to say, they want to bring all of the European factories together. In other words, it has now become an international issue over there."

Declaring that most of the continental countries, Germany, Belgium, France, Luxemburg and Czechoslovakia, have joined the steel cartel, Dr. Klein said that England has not yet formally joined the group but there are constant intimations that she will. Other cartels, about 12 of them, have since been organized, Dr. Klein said, among organizations controlling raw steel, rails, tubes, wire, aluminum, copper and enamel ware.

"I do not think it is a thing over which we need be too seriously alarmed; that is to say, it is nothing to justify a panicky reaction," Dr. Klein declared. "As yet, I think the situation can be met by the great advantages that we have in this country; but it is certainly a situation that we will have to watch very

closely, and this is my purpose in bringing it up at this time. We have simply got to be informed on the subject immediately, so as to know what is going on within these specialized industries."

### Europeans in Drive for Foreign Markets

Another phase of competitive effort that required attention, Dr. Klein said, regards individual governments in Europe which are preparing, "with a seriousness and intensity never manifested until this year for a new drive for foreign markets." Reference was made to different movements in this direction, among them the setting up by the British of the Imperial Marketing Board which is to receive \$5,000,000 annually for 10 years for the purpose of developing trade between different parts of the British Empire.

"The British Empire is easily our largest customer," Dr. Klein stated. "If my memory serves me, we sell not less than 44 per cent of our total exports to units of the British Empire, and any move like that is a matter of very considerable interest to us. Incidentally, this \$5,000,000 fund is a good deal more than the appropriation of the whole Bureau of Foreign and Domestic Commerce."

He said the commercial rapprochement that is being stimulated among the different units in the British Empire is something to which no exception could be taken. On the contrary, he said, it helps the prosperity "of our best customer it will obviously help us." Yet he said the situation should be watched carefully. Dr. Klein also dealt with discriminations against American products through tariffs and regulations of different countries. Among other things he said that although the British are very active in Australia and India, where they have advantage in the way of lower tariffs, the United States' share of Australian imports rose from 11 per cent of her total imports just before the war to 22 per cent today.

## EXPORT BUSINESS SMALL

Small Lots of Tin Plate Sold to Far East—Japan Inquires for Oil Well Supplies

NEW YORK, Jan. 17.—Export business continues small. There has been some small-lot buying by Cuban consumers, and Japanese merchants have recently been asking for prices on light-gage black sheets and tin plate. A current inquiry from Japan covers a wide range of oil well supplies, including 47½ tons of seamless oil well casing and 46,000 ft. of ¾ to 3-in. gas pipe for the Northern Karafuto Oil Co. The South Manchuria Railway Co. has awarded 100 miles of 100-lb. rails to European mills, but placed about 157 tons of anti-creepers in the United States. The Chosen railroad, recently in the market for rails and accessories, has placed 1676 tons of tie plates and about 46 tons of guard rails with American mills. A small lot of 82-lb. high T-rails for the same railroad is reported to have gone to a Continental mill.

Both Japanese and Chinese merchants have been fairly active purchasers of small lots of tin plate at prices ranging from \$5.25 to \$5.35 per base box, c.i.f. Japanese or Chinese port. While there has been some inquiry from Japan for light-gage black sheets, the market here is about \$77 per ton, c.i.f. Japan, and the British quotation is still \$73 to \$74 per ton, c.i.f.

New York importers of European steel have been booking only small orders lately. Continental prices are still from 1.68c. to 1.73c. per lb. for Thomas steel bars and 1.58c. to 1.63c. per lb., duty paid, for shapes. There is some small business being done in low-carbon wire rods and hot-rolled hoops.

A bibliography of factory cost accounting and production engineering, compiled by Paul M. Atkins, consulting industrial engineer, Chicago, has been published by the Society of Industrial Engineers, 608 South Dearborn Street, Chicago. Of the 90 pages (6 x 9 in.), 13 are devoted to a general bibliography, 42 to production engineering and 35 to cost accounting. Each of the last two sections of the bibliography is subdivided topically.

## British Iron and Steel Output Small in December—Totals for 1927

LONDON, ENGLAND, Jan. 14 (*By Cable*).—December production of both pig iron and steel declined sharply from previous months. Pig iron at 559,100 gross tons was the smallest for the year except January. At 604,900 tons the lowest steel production for any month of 1927 was recorded.

The 1927 pig iron total was 7,293,500 tons and that of steel was 9,099,000 tons. How these compare with previous years is shown in the following table in gross tons:

	Pig Iron Tons	Steel Ingots and Castings Tons
1913—Average monthly.....	855,000	638,600
1920—Average monthly.....	669,500	755,600
1922—Average monthly.....	408,500	490,100
1923—Average monthly.....	620,000	706,800
1924—Average monthly.....	609,900	685,100
1925—Average monthly.....	519,700	616,400
1926—Average monthly.....	203,500	296,700
1927—Average monthly.....	607,800	758,200

## Unfilled Orders of Independent Sheet Mills Largest in Eight Years

The formal report of the National Association of Sheet and Tin Plate Manufacturers confirms earlier information that the end of 1927 would see unfilled orders of approximately 750,000 tons. The actual figure as disclosed in the monthly report is 745,393 tons, equal to more than two months' full operation and the largest tonnage the companies reporting have had on their books at one time in almost eight years. Sales in December gained heavily, reaching an aggregate of 530,197 tons, almost 200,000 tons more than in November and almost 300,000 tons more than in October. The excess of sales over shipments in December was approximately the same as the increase in unfilled orders, sales running 308,508 tons over shipments, while the increase in the unfilled orders was 308,087 tons. Never before since the association has been issuing reports has there been such a close relation between the difference between sales and shipments and the change in unfilled orders. The December figures with comparisons follow:

	December	November	October
No. of mills .....	719	718	719
Capacity per month.....	472,064	485,350	472,500
Per cent reporting.....	72.6	72.6	72.6
Sales .....	530,197	344,519	234,358
Production .....	260,130	232,041	245,765
Shipments .....	221,689	224,789	232,626
Unfilled orders.....	745,393	437,306	308,264
Unshipped orders.....	97,630	92,678	95,462
Unsold stocks.....	52,474	52,996	50,518
Percentages to Capacity			
Sales .....	154.7	97.8	68.4
Production .....	75.9	65.9	71.7
Shipments .....	64.7	63.8	67.9
Unfilled orders.....	217.5	124.2	89.9
Unshipped orders.....	28.5	26.3	27.9
Unsold stocks.....	15.3	15.0	14.7

## Government Publishes New Book on Trade Associations

WASHINGTON, Jan. 17.—The Bureau of Foreign and Domestic Commerce has issued the second edition of "Trade Association Activities," prepared by Irving S. Paull, J. W. Millard and James S. Taylor. Indicative of the growing cooperation between the Government and business, this compilation was brought about through the efforts of more than 500 officers of trade associations and 50 officials representing 17 Federal departments. There were others also, including those in the legal and other professions. The subject of trade association activity is treated comprehensively in the book's 365 pages. Trade associations throughout the country, their activities, accomplishments, etc., are listed.

In a foreword, Secretary Hoover says that the purpose of the new and previous publications is to indicate the successful service of trade associations in public interest.

Bituminous coal mined in the first week of January is reported by the United States Bureau of Mines at 9,803,000 net tons. This is about in accordance with recent weeks, but is 10 per cent below the figures of a year earlier.

## Bill to Authorize Educational Orders for War Department Needs

WASHINGTON, Jan. 17.—The shortage in the War Department's reserves of munitions, equipment and raw material which recently was reported to President Coolidge by Secretary Davis has prompted a bill just submitted to Congress by the department. The measure would authorize the Secretary of War to place educational orders for equipment, munitions and accessories with industries of the country to familiarize them with their production and to advance the industrial mobilization program of the War Department. The bill would provide for the placing of these orders with industrial companies regardless of the general requirement that the lowest bid be accepted. The Secretary of War pointed out that the new type of artillery guns and carriages can be manufactured more cheaply by the Government than by private industry, but contended that part of those needed should be made by private companies so that they might acquire knowledge of the methods and requirements and thus be prepared for mass production in the event of an emergency. Secretary Davis also pointed out that rifle ammunition of the present type differs considerably from that used in the World War and yet no private producers have manufactured it.

## Battelle Memorial Institute for Industrial Research

Announcement has been made of the organization of the Battelle Memorial Institute at Columbus, Ohio, which has been formed to perpetuate a trust arising from the will of Col. John Gordon Battelle, his wife and his son, Gordon Battelle.

Colonel Battelle was active in the iron and steel and coal industries, and his son, whose death in 1923 made the estate available, was also an active figure in the iron and steel trade in the Middle West, being a director of the American Rolling Mill Co., and the Inland Steel Co., and other companies.

Under the terms of the will the institute is to be located in Columbus. A tract of about five acres, opposite the campus of the Ohio State University, has been secured and the construction of the first two buildings, to cost about \$500,000, will be undertaken in the spring. Dr. Gerald Wendt, dean of the school of chemistry and physics, Pennsylvania State College, has been selected as director and it is planned to begin operations at the institute by the fall of 1928. Otto C. Darst, Columbus, has been designated as the architect.

The first building will stand as a memorial to the Battelle family, and will comprise administrative offices, auditorium, library, museum, machine shop, stock rooms and a number of laboratory suites. The second building, to adjoin the first, will have individual laboratories and an engineering shop, the latter to be provided with balconies and an electric overhead crane.

It is stated that although the main object of the Battelle institute will be industrial research under the fellowship system, similar to that at the Mellon Institute, the income from the funds of the institute itself will be devoted to long-distance industrial research for the benefit of American industry and for scientific research. The board of trustees includes Joseph H. Frantz, Earl C. Derby, Harry M. Runkle and Gerald B. Fenton, all of Columbus. Bishop J. W. Hamilton, formerly president of the American University, Washington, and J. Clare Miller, Ashland, Ky., are also trustees.

## 1927 Car Loadings 2.6 Per Cent Under 1926

Complete reports of the car service division of the American Railway Association show that 51,714,302 cars were loaded with revenue freight in 1927. This was a decrease of 2.6 per cent from 1926, but an increase of 0.9 per cent over 1925. For the week ended on Dec. 31, 1927, loadings amounted to 679,600 cars, a decrease of 149,406 cars from the preceding week and 54,681 cars from the corresponding week of 1926.





A. F. COOKE,  
Vice-president



J. M. CLEM,  
Vice-president



WILLIAM GANSCHOW  
Vice-president



S. C. DALBEY  
Sec. and Treas.



F. W. SINRAM,  
President

## Large Gear Interests Merge as Gears & Forgings, Inc.

Chio Forge Co. Also Included in Consolidation of Van Dorn & Dutton Co., Fawcus Machine Co. and William Ganschow Co.

**F**ORMATION of Gears & Forgings, Inc., as a consolidation of the Van Dorn & Dutton Co., Cleveland; the Fawcus Machine Co., Pittsburgh; the William Ganschow Co., Chicago, and the Ohio Forge Co., Cleveland, has been announced. Preliminary plans for this merger were mentioned in *THE IRON AGE* of Jan. 5. Inclusion of the Ohio Forge Co. in the new organization enables it to control the manufacture of industrial gears from the raw materials to the finished products, and, as one of the country's largest manufacturers of gears, the new company will be able to realize the advantages of large scale production and geographical location.

### The Constituent Companies

The Van Dorn & Dutton Co., founded in 1897, has a plant at Cleveland, and manufactures industrial gears of all types. The company has been particularly active as a maker of gears for machine tools, and has specialized in analyses of machine tool power transmission problems.

The Ganschow company, organized some 50 years ago, was one of the first gear manufacturing companies in Chicago. Beginning as a maker of general industrial gears, it has extended its products to include spur gear and worm gear speed transformers and cut gears of all types and materials. The company has plants at Chicago and Peoria, Ill.

The Fawcus Machine Co. is a maker of large industrial gears, herringbone gears and special machinery. With plants at Pittsburgh and Ford City, Pa., the company now produces, in addition to a wide line of gears, special steel mill equipment, including mills, strip coilers, gear transmissions of from 100 to 15,000 hp., tandem sheet mill drives, and machinery for mechanically operated bridges. It also engages in engineering of heavy mechanical devices for various purposes. It was organized in 1901.

In 25 years the Ohio Forge Co. has expanded from a one-hammer shop to a seven-unit plant equipped with modern forging machinery. Its location adjoins the plant of the Van Dorn company at Cleveland, affording direct control of material in the new organization.

### Personnel of New Company

F. W. Sinram, chosen president of Gears & Forgings, Inc., has been president and general manager of the Van Dorn & Dutton Co. for a number of years and has been largely responsible for its expansion and growth. One of the organizers of the American Gear Manufacturers' Association, he was its first president and held that office from 1917 until 1923, when he was elected honorary president for life. He has been active in the work of standardization of gear design, and was prominent in Secretary Hoover's gear standardization program. Mr. Sinram's headquarters

will be at the company's general offices on Woodhill Road, Cleveland.

A. F. Cooke, formerly vice-president and general manager of the Fawcus company, who will be first vice-president of the new corporation and manager of the Fawcus Division, has also been active in the American Gear Manufacturers' Association, particularly as chairman of its herringbone committee. As the former president of the William Ganschow Co., William Ganschow, second vice-president of the new company and manager of its Ganschow Division, has spent the greater part of his life in the gear-making business. He served on the first gear standardization committee of the association. J. M. Clem, third vice-president, founder and general manager of the Ohio Forge Co., will serve as manager of the consolidation's Ohio Forge Division. His interest has been largely with the operating divisions of the Ohio Forge Co., while S. C. Dalbey, who has been active in the commercial development of the forge company, will be secretary and treasurer of Gears & Forgings, Inc.

T. E. Leighton, formerly secretary of Van Dorn & Dutton, will be assistant secretary and treasurer of the new company, and C. F. Goedke, recently secretary of the Ganschow organization, will be district sales manager with headquarters in Chicago. The officers, together with H. B. Newell, for many years assistant to Mr. Cooke in the Fawcus company, will constitute the directorate of the new company. Mr. Newell will also be chief engineer.

## Compressed Gas Manufacturers to Hold Annual Meeting

The fifteenth annual meeting and dinner of the Compressed Gas Manufacturers' Association will be held at the Hotel Astor, New York, Monday, Jan. 23.

Following an address of welcome by the president, John C. Minor, at 10.30 a. m., three papers are to be presented as follows: "Improving the Physical Properties of Steel by Testing Beyond the Elastic Limit," by Dr. F. C. Langenberg, metallurgist Watertown Arsenal and vice-president Climax Molybdenum Co., New York; "Corrosion," by C. E. MacQuigg, manager Union Carbide & Carbon Research Laboratories, Long Island City, N. Y., and a liquid oxygen demonstration, by G. E. Harcke, Air Reduction Co., New York.

An afternoon session will be devoted to such topics as dry ice and the fire hazards of methyl chloride as a refrigerant, together with an address by Merritt Lum of the McGraw-Hill Publishing Co. on "Sound Industrial Marketing." A business session will follow the afternoon technical session.

The annual dinner is scheduled for 7 p. m. in the north ballroom at the Hotel Astor.

## COPPER INDUSTRY IN 1927

**Total Stocks Fell Off—Exports Increased but Imports Declined—Domestic Consumption Low**

**OUTSTANDING** features of the copper industry in 1927, according to the United States Bureau of Mines, were a relatively maintained production, a decrease in imports of refined copper, an increase in exports of metallic copper, a decrease in total stocks and a falling off in domestic withdrawals.

Stocks of refined copper available for consumption were 22,000,000 lb. larger at the beginning of 1927 than at the beginning of 1926. The small drop in refined copper output and the decrease in imports of refined copper made less copper available for consumption and, together with the increase in refined copper exported, entirely offset the decrease in domestic withdrawals. Therefore, the increase in stocks of refined copper in 1927 was relatively the same as in 1926, approximately 22,000,000 lb.

The smelter production of copper from domestic ores in 1927, as determined by the Bureau of Mines from reports of the smelters showing actual production for 11 months and estimated production for December, was 1,696,000,000 lb., compared with 1,740,000,000 lb. in 1926. The 1927 production is 2.5 per cent less than that of 1926, but, with the exception of 1926, is the largest peace-time production on record. The estimated smelter production from domestic ores for December, as reported by the smelters, was 145,000,000 lb., which is 4,000,000 lb. higher than the average for the 11 months preceding.

The production of new refined copper from domestic sources, determined in the same manner as smelter production, was about 1,739,000,000 lb., compared with 1,731,000,000 lb. in 1926. In 1927 the production of new refined copper from domestic and foreign sources amounted to about 2,318,000,000 lb., compared with 2,322,485,000 lb. in 1926, a decrease of nearly 4,500,000 lb., or 0.2 per cent. The production of secondary cop-

per by primary refineries decreased from 225,118,000 lb. to about 216,000,000 lb. in 1927, or 9,000,000 lb., so that the total primary and secondary output of copper by the refineries was a little over 0.5 per cent lower in 1927 than in 1926, being about 2,534,000,000 lb., compared with 2,547,603,000 lb.

### Imports and Exports

The imports of manufactured copper during the first 11 months of 1927, according to the Bureau of Foreign and Domestic Commerce, amounted to 660,326,768 lb., a monthly rate of 60,000,000 lb., compared with 779,441,803 lb. for the entire year 1926, a monthly rate of 65,000,000 lb. The total imports for 1927 will very likely show a decrease in quantity approximating the monthly average for the year.

The exports of metallic copper during the first 11 months of 1927 amounted to 965,434,212 lb., compared with 960,220,112 lb. exported during the entire year 1926. If the exports of metallic copper in December equaled the monthly average for the first 11 months of the year, nearly 88,000,000 lb., the total for 1927 was about 1,053,000,000 lb., an increase of about 10 per cent over the exports in 1926.

Refineries report that at the end of 1927 approximately 168,000,000 lb. of refined copper would be in stock, an increase from 146,000,000 lb. at the end of 1926. It is estimated that stocks of blister copper at the smelters, in transit to refineries, and at refineries, and materials in process of refining, would be about 380,000,000 lb. on Dec. 31, compared with 455,000,000 lb. at the end of 1926, a decrease of 75,000,000 lb. Therefore, a decrease of 53,000,000 lb. in total smelter and refinery stocks is indicated.

The quantity of new refined copper withdrawn on domestic account during the year was about 1,442,000,000 lb., compared with 1,570,000,000 lb. in 1926, a decrease of 128,000,000 lb., or approximately 8 per cent. However, domestic withdrawals in 1927, with the exception of those in 1926, were larger than those of any other peace-time year.

### Fewer Mechanical Stokers Sold in 1927

WASHINGTON, Jan. 16.—Mechanical stokers to the number of 83, with 32,202 hp., were sold in December, according to reports received by the Department of Commerce from 12 establishments, compared with 67 stokers and 16,955 hp., sold in November. The December rating was the highest since August. Of the number sold in December, 29 with 4799 hp., were installed under firetube boilers and 54 with 27,403 hp., under watertube boilers. For the calendar year, 1261 mechanical stokers, with 462,918 hp., were sold, comparing with 1361 with 546,228 hp., sold in 1926.

### 1927 Construction Costs Slightly Above Previous Year

Construction costs rose slightly during 1927, according to statistics compiled by the Associated General Contractors of America, Washington. The average of these costs at the conclusion of the year was exactly twice as high as the corresponding figure for 1913 and was identical with that of 1921.

### Sharp Drop in Locomotive Sales Last Year

Shipments of railroad locomotives are reported by the United States Department of Commerce to have aggregated 1074 units in 1927. This is a reduction from 1926 of 39 per cent, the figure in that year having been 1755. The decline covered all the groups, except steam locomotives for export, which increased from 167 to 171. The sharpest drop was in electric locomotives for export, which fell off one-half, from 59 to 29. Steam locomotives for domestic roads dropped 46 per cent from 1352 to 726, while electric locomotives for American use declined 16 per cent from 177 to 148. Orders on

hand at the end of the year were 232, compared with 398 a year earlier and with 780 at the end of March, 1926.

### Wholesale Prices Almost Stationary

December averages of commodity prices, as reported by the United States Bureau of Labor Statistics, show 96.8, compared with 96.7 in November, both being referred to the average of 1926 as 100. Both months were lower than in December, 1926, when 97.9 was recorded.

Metals and metal products showed a considerable advance, from 97 in November to 98.4 in December. This was due almost entirely to non-ferrous metals and to automobiles, both of which are shown to have advanced two points or more. Except for an advance of 2.6 points in hides and leather products, all the other main groups of commodities showed only fractional changes, mostly downward. Building materials advanced slightly, while fuels showed a small decline.

### Further Reduction in Trackwork

Shipments of trackwork for heavy rails in 1927 were the smallest for several years, according to a report of the American Iron and Steel Institute. The total is given as 140,950 net tons, compared with 178,588 tons in 1926 and 171,394 tons in 1925. A total of 211,662 tons was shipped in 1923. Monthly shipments fell off during the last four months of 1927 to successively lower figures each month than had been recorded within the three-year period. December, with 8263 tons, was the lowest of all.

Class I railroads on Dec. 31 had 464,005 surplus freight cars in good repair and immediately available for service, the Car Service Division of the American Railway Association has announced. This was an increase of 57,311 cars, compared with Dec. 24, when there were 406,694 cars.



# Better Marketing Is Steel Need

Consideration Given by Sales Executives to "Profitless" Selling  
—One Sees Mergers As a Step Toward Stabilization

**I**N THE IRON AGE of Jan. 5 appeared a number of contributions from steel selling executives commenting on the difficulties encountered in the marketing of steel at profitable prices. Two other letters on this subject are presented below in which the hope is expressed that mergers in the industry will work toward economic stabilization, and that cooperation along proper lines among steel producers will also prove to be an important factor in educating both sellers and buyers that stable and profitable prices for steel will help to create more prosperous conditions for both. The letters follow:

## Sees Mergers as an Aid to Steel Price Stabilization

"The profitless prices existing in the steel industry today in most cases have been established by some producers who are striving desperately to stay in the running and hoping for a more profitable period in order to recoup their losses, or put up an appearance of capacity operation and seeming prosperity in order to negotiate an advantageous merger with some other company.

"It is to be noticed that this same condition exists not only in the steel industry, but in practically all lines of endeavor—particularly, we refer to the coal industry. The present low prices in the coal industry are dictated by the small and inefficient producer, and the only solution to this problem in the steel, or any other industry, is the consolidation or merging of many of the small producers under one head and to have these merged companies operated economically.

"It is within the ability of all of the steel companies to stabilize steel prices at a profitable level if they will simply recognize the published prices and refuse to accept a buyers' market. This, however, can only be done when the smaller units have been consolidated into larger units and the management of the various large units recognizes that it is futile and hopeless to try to make a profit in the steel business as long as selling prices are lower than the cost of production.

"Present indications show a trend toward steel producers' merging with manufacturers of various types of articles using the steel produced from the integral unit. The main reason for this is to overcome the tendency of buyers to dictate the price they are willing to pay for their raw material; and if present buyers persist in this effort, they will, in a few years, find the steel companies in competition with them rather than a source of supply for them.

"The cutting of steel prices does not create a particle of extra business for the steel industry as a whole, and the greatest amount of buying is never done on a declining market. It is only after the turning point of prices that many of the buyers come into the market in order to secure the best prices they can before there is an increase of any size; and it is generally shortly after this turning point that the industry as a whole enjoys the greatest prosperity, measured in the highest percentage of operation. This increase in operation is generally reflected throughout the country in various other industries by better employment and larger sales of finished material or equipment of various kinds.

"Therefore, if the buyers of steel products in the United States could be educated to the point of being willing to pay at all times a profitable and stable price for steel commodities, the average prosperity of the country would be greater at all times than under existing conditions. This would permit a better general average of employment throughout the country and would tend to increase the faith of the buying public in the future, purchasing not only for immediate needs, but for future requirements.

"It is to be hoped that under the leadership of

Charles M. Schwab, the new president of the American Iron and Steel Institute, who is a great advocate of cooperation, the institute will appoint a committee to work out some plan whereby this general scheme of education for stabilizing operating conditions and prices may exist without violating any of the laws of our country."

## Says Demand for Capacity Operations Brings Profitless Selling

"It is our opinion that it is not the selling of steel that is wrong so much as the manufacture, and by that I mean that most sales managers are influenced by the attitude of operating officials who insist that they must run to capacity in order to obtain low costs. Obviously this policy followed by all steel producers results in a scramble for the available business and generally drives prices to a point where no profit exists and where all manufacturers are generally on the same footing so far as operations are concerned. I believe it is the feeling of most men handling sales problems in steel that much more intelligent policies could be formulated and followed if the operating demand for capacity operations could be removed.

"The present form of steel contract of course is not a contract at all. It surely has a pernicious effect on the market, as shrewd buyers, when they sense a price advance coming, will cover for their estimated requirements with as many producers as are foolish enough to offer them options, so that advances in price do not affect them, at least for three to six months after higher prices are established.

"No doubt if all forms of rolled steel could be sold in the same manner as pig iron, copper and zinc, much more stable markets would result.

"Concessions granted to large buyers undoubtedly have an undermining influence on price structures and in our opinion should be entirely eliminated.

"The pipe situation is better than most lines in steel, for the simple reason that there are comparatively few producers and those who are in the industry apparently have rare judgment in the handling of their business."

## Institute of Metals to Discuss Secondary Metals

Secondary metals will be the topic of a symposium headed by E. R. Darby, Bunting Brass & Bronze Co., Toledo, Ohio, at the annual meeting of the Institute of Metals Division, American Institute of Mining and Metallurgical Engineers, New York, Feb. 20 to 23. H. M. St. John will describe the practices and problems of reclaiming such secondary metals as are used at the plant of the Detroit Lubricator Co.; Don C. Blackmar will consider the economic side of plant handling of waste materials; C. O. Thieme will discuss the contamination of metal scrap, the effect on the value, and suggested means of control, while T. A. Wright will discuss the sampling and evaluation of secondary non-ferrous metals. J. P. Dunlop, of the United States Bureau of Mines, will present statistics on the amount of secondary non-ferrous metals now recovered in this country, showing what a large proportion of the metal used is derived from secondary sources.

Since the reliable information available on these topics is very meager it is expected that the attendance at these sessions will be large and that all present will participate in the discussions so as to increase the general fund of knowledge. The institute urges that all interested in the secondary metal business, whether members of the institute or not, attend these sessions, as the members will be glad to have their cooperation.

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# This Issue in Brief

Doubles output of moderate-sized plant by relatively simple, quickly-made changes. Overhead monorail system hung from wooden roof trusses, regrouping of machinery, and institution of four-shift working day enable foundry to modernize without rebuilding. Change from old to new basis was made in two days.—Page 187.

Steel prices are likely to move upward, Dr. Haney indicates. His forecast is based on the fact that unfilled orders have increased sharply, output is subnormal, and steel is cheap in comparison with average price of other commodities.—Page 206.

Over-extension of sales effort is blamed for low profit level. There is enough prosperity to go around, says machinery builder, but metal workers have intensified an already highly competitive situation by unwise extension of sales efforts.—Page 220.

Rockwell hardness test provides a simple means of preventing the mixing of mild carbon seamless tubing with alloy steel tubing for aircraft use. In normalized state, chrome-molybdenum tubing shows a hardness of not less than 90B, while mild steel is below 80B.—Page 202.

"Fairly prosperous" year is expected by majority of members of National Metal Trades Association. More than half the members replying to questionnaire believe business will be "good" in 1928; 7.25 per cent expect "extra good" business, and 34.75 per cent say "fair."—Page 200.

Severe shock caused by guns being fired dead ahead fails to injure sheet steel used in battle-ships. Steel, non-splintering and enduring, displaces wood and canvas for partitions, desks, bunks, wind sheds, etc., on war vessels.—Page 199.

Sintering will reduce pig iron-making costs, says engineer. All flue dust can be sintered, he declares, at a fraction of the unit cost of equivalent ore, and that the use of 100 per cent sinter in the blast furnace will effect economies not believed possible heretofore.—Page 191.

"Comparative cost" card warns production head when cost of any manufactured part runs above normal. The card shows comparative costs over a period of years, and moves him to investigate before or while the next lot is in production.—Page 196.

Foundry of moderate size finds economical way to dispose of slag. Instead of emptying it into a hole in the floor, a cast iron dump bucket is spotted under the weep hole of the cupola. When the bucket is full, it is pulled to the dump yard, on a monorail conveyor, and emptied after cooling.—Page 190.

Watch European cartels, warns Dr. Klein, asking Congress for larger appropriation for foreign trade work. The enormous advantage the United States has with its great domestic market has instigated the formation of international combinations. All Europe is combining in drive for foreign markets.—Page 211.

Pig iron prices appear to have reached bottom, says Dr. Haney. However, he does not anticipate any real strength until steel-making requirements increase relatively to iron output.—Page 208.

Production efficiency increase is reported by majority of National Metal Trades Association members. Two-thirds of those replying to questionnaire say increase is due to plant extensions, new processes, wage incentive plans, etc.—Page 200.

The South is steadily increasing in importance as a market for industrial equipment and supplies. Close proximity of raw materials and consuming markets is a considerable factor in rapid expansion of manufacturing in Southeast.—Page 190.

Unfilled sheet orders attain largest volume in eight years. Independent producers report almost three-quarters of a million tons of orders on hand at beginning of year, equal to two months' full operations.—Page 212.

Will lower automobile prices start another cycle of price-cutting in metal trades supplying motor car builders? If lean profits are not to be further shaved, this is the psychological moment for a move just opposite to that of forcing prices down.—Page 218.

Is "more consolidations" the solution to profitless prices in steel industry? "Yes," says steel sales executive. When some units are eliminated prices will improve, he believes.—Page 215.

A simple way to identify nickel steel. Apply a drop of 50 per cent nitric acid to the steel. Blot it. Then coat the wet spot with di-methyl-glyoxime solution. If nickel is present the spot will turn strawberry pink. If nickel is absent, the spot will be reddish brown.—Page 202.

Smaller plants are cutting costs by making increasing use of material-handling equipment. The mistaken impression is fast disappearing that the use of labor-saving devices in moving materials is only for the larger plants. The flexibility of present-day material-handling equipment enables it to be adapted quickly and cheaply to changing conditions.—Page 219.

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# THE IRON AGE

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## What Price Automobile Trade?

FROM many sources comes the prediction that 1928 will be a big year for automobiles. Mr. Raskob of General Motors even says it will be a 5,000,000-car year. Since not a little of the reaction of 1927 was blamed on Mr. Ford's shutdown, the inference is that general business will be quickened by any prosperity that comes to the motor industry this year.

But a small cloud already appears. Competition among the low-priced cars made by Ford, Chevrolet, Willys and Durant is to be most keen; there have been predictions, indeed, of something like a price war. This reminds those who sell to the automobile companies (steel mills, foundries and parts manufacturers) of other times when price reductions in finished cars meant increased pressure for lower prices on new materials, parts and other supplies. Is history to repeat itself, and 1928 find that the lean profits made by the metal-working industries in 1927 are to be further shaved to maintain motor-car surpluses intact?

Some leaders among the motor car builders are far-seeing enough to know that their industry is more than the big assembly plants; that it includes the organizations which make stampings, forgings and castings, and that the industry generally can not prosper if these essential adjuncts become profitless. Only last week Walter P. Chrysler was quoted by *Automotive Industries* as saying:

"When parts and accessory manufacturers don't get a reasonable profit on the units they sell to car manufacturers, it isn't a good thing for the industry; every branch of the industry should be getting fair returns to preserve a healthy condition for all."

Men who are in the habit of meeting the purchasing agents of the big motor companies will hardly expect to have the prices they receive under their contracts raised without notice. Nevertheless, they will agree with Mr. Chrysler's sentiments and, if their salesmanship has any better basis than the brute argument of a lower price, will see to it that added volume of business gives them added income. In all probability there will be a great demand in 1928 for parts and accessories, and for

the bars and sheets to make them. Already this portion of the industry is going strong; some of the stamping plants are running 24 hours a day. With this urge for production, it is clearly not the time for any attempt to force prices down closer to the rock bottom from which they have been so thinly separated all through 1927.

In fact, it is the psychological moment for just the opposite move. Efforts for higher prices are quite likely to be resisted strongly by automobile purchasing departments and there may be strong threats to place the work elsewhere. But often underneath such maneuvering there is the intention to stretch a point to stick to old business friends, because they can be relied upon to produce acceptable materials, worthy of the car they are built into, and with deliveries that can be depended on to meet production schedules. Such service as many parts and materials manufacturers are giving cannot be continued without reasonable profit, and seldom can it be duplicated satisfactorily by a competing firm at a lower price.

Mr. Chrysler is right. We commend his utterance not only to those metal-working companies to which the automotive industry gives such large employment but to those steel manufacturers who sell sheets, bars and other products to the car builders. After all they have done in the past year to secure better selling and better distribution it should not be easy now to start them again on the vicious circle of price-cutting to increase volume, to get costs down, to get more business, and so on in the demoralizing process that in the end profits buyer no more than seller.

## Profits from Improvements

EARNINGS of fourteen leading producers of iron and steel represented barely 4½ per cent on investment in the third quarter of 1927, and the fourth quarter returns were probably even less favorable. A condition is indicated that calls for remedies. Much attention has been given to the reduction of costs, but heavy outlays in improvements for that purpose are sometimes ill-advised.

It is so readily taken for granted that improve-



ments will pay for themselves that the chances of their not doing so are frequently overlooked. Whether the outlay be for a plant addition, decreasing production costs or increasing tonnage and thus distributing overhead, or for a new type of mill replacing the current type, the expenditure should be got back within a relatively short period of years, since further improvements in methods or equipment may be developed.

Investment in plant and equipment is justified when additional profit accumulates to pay the cost of the improvement. But in some cases price cuts are based on the decreased cost and legitimate earnings are sacrificed. The computations on which the earning power resulting from the expenditure was based are nullified by the sales policy, and the company is injured by one department's failure to cooperate with another department. Moreover, competitors following a more enlightened policy are deprived of profits to which they are entitled and their ability to finance improvements is curtailed. The net result, unfortunate for the individual producer, may be unfortunate for the trade at large.

Methods of selling the various finished steel products are influenced by a complicated market with intricate details. By no means is it to be inferred in each instance that lower prices are to be attributed to the sellers, sometimes few in number, with recently improved equipment and reduced costs. Producers with older equipment in many cases may be responsible. They may feel more menaced than the lower-cost producers and indulge in more strenuous and unintelligent competition than they would otherwise practice. By so doing, however, they cut off the opportunities they might have for making similar improvements, besides destroying the earning power of the improvements already made.

It is as disadvantageous to the country at large as it is to the industry itself for the steel market to move in such fashion. Improvements may even become burdens if they are forthwith made the basis of new price cuts.

## Materials Handling in Smaller Plants

**D**IMINISHING margins between costs and selling prices have cut heavily into profits in manufacturing in the past three years. As a result, it has been found necessary to cut costs in every available way. This has been accomplished in the main without cutting wages. One of the principal elements in this campaign has been a larger and larger utilization of materials-handling equipment.

Formerly it was considered almost axiomatic that equipment of this character could be installed only by large companies having heavy financial resources. More recently it has come to be realized that this point of view is erroneous. Smaller companies are making great use of labor-saving devices in moving materials from one process to the next, from receiving platform to storage or to process and from the finishing operation into warehouse or to shipping platform. An interesting example is covered in our leading article of this week.

A principal feature of materials handling in its present-day form is the flexibility both of the individual units and of systems. This makes it possible to alter the use to which certain elements are put

as soon as changing conditions call for it. One company, which has a large amount of overhead tramrail in use, is reported to be making changes continually as requirements of one department or another call for it. In fact, it is said that there is less than 50 ft. of straight tramrail in any one section in that plant, although several miles of system are used.

Where it is possible to relocate tramrail on short notice and at low expense in this manner, it is obvious that small systems, consisting of one or two or half a dozen short stretches of such overhead track, may be utilized in a smaller plant, and at a cost commensurate with the extent of use. Expansion in plant or in product would be accompanied as a matter of course by increased handling facilities, as required.

Electric lift trucks, together with an assortment of skids to be handled by these trucks or by the tramrail system or both, form another convenient means of utilizing power in place of brawn in a small plant. Initial cost, together with upkeep and operating expense, may be proportioned to the needs and to the quantity of material to be handled. These machines can go where it would not be feasible to put rails except in an extensive system. They can negotiate moderately rough ground outside the buildings, if necessary. In some instances they have been used to carry materials for two or three blocks over city streets. Thus, their flexibility is great and their help to the smaller plant should be correspondingly large.

## A Too Costly Navy

**A** COMPLETE discussion of the naval program recently presented to Congress would require volumes. Much of it will be undertaken in the forthcoming hearings and debates at Washington. It is to be hoped that the next few months will bring the American public into a better acquaintance with the real function of the Navy. The country will have also to decide how much it should spend for a merchant marine, for the two problems of commerce and Navy are closely interlinked.

It is necessary now to consider whether the proposed plans can be harmonized with the public statements of our national officials. It has been said frequently by members of the administration that the United States has not and does not intend to enter upon a naval competition. Yet the 1928 issue of Brassey's *Naval Annual* (a recognized technical authority) says that recently there has arisen "serious competition in the new type of 10,000-ton, 8-in. gun cruisers" capable of developing high speeds. This book gives the following data:

	Nearly Completed	Building	Authorized	Total
Great Britain..	5	8	1	14
United States..	2	6	..	8
Japan .....	0	6	1	7
France .....	1	3	1	5
Italy .....	0	2	..	2

To this table a supplementary item should include the ten 34-knot scout cruisers of the Memphis class, displacing 7500 tons and mounting 6-in. guns, completed about four years ago.

The feeling that the navies are over-reaching themselves in this matter was expressed in the cheers which greeted the announcement made be-

fore the House of Commons that the British Admiralty had decided to authorize but one of the three projected cruisers in 1928.

In the face of this situation and sentiment, the general board of our Navy asks Congress to lay down twenty-five more of these ships by 1933, and coolly says it does not intend to indulge in any competition.

Despite the official assurance that this program (including an important number of auxiliary ships) is devised entirely to meet our own needs, and should not lead to competitive building, it is proper to ask whether 250,000 tons of modern cruisers would, in fact, be regarded by the other great powers as a serious threat. One who is acquainted with the proceedings at the Geneva conference to limit auxiliary naval craft (summarized in *THE IRON AGE* for Sept. 15, 1927) cannot help but conclude that the powers would so regard an overpowering strength in any category.

It should be remembered that the United States representatives proposed at Geneva that the cruiser tonnage be limited to 250,000 tons total, or at most 300,000 tons. They could not agree with the British minimum counter proposal to limit total cruisers of all sizes to 400,000 tons.

Now contrast our Geneva protestations of a desire for 250,000 tons of cruisers with our present project: 18 first-line cruisers already built or building, with a total displacement of 155,000, plus 25 of the 10,000-ton boats in the new Navy proposal. Forty-three cruisers in all with a total tonnage of 405,000. If the present proposals represent our real needs, as the Navy experts keep reiterating, then our needs have grown amazingly in the last seven months, or else there was a blunder in not snapping up the British offer of parity at 400,000 tons made at Geneva. (Of course, the Japanese were strongly opposed to signing any such expansion agreement in a conference to "limit" armaments, but if Japanese sentiment can be disregarded now, it could equally well be disregarded then.)

It is difficult for the layman, even for the naval expert, to arrive at any appraisal of our country's needs in the way of a fleet. It should be remembered that the fast 10,000-ton cruisers are exceedingly formidable warships, more pugnacious than the full-fledged battleship of 25 years ago. The term "light cruiser" therefore misrepresents the craft. British experts look upon them as secondary ships for combat purposes, and believe that the eighteen battleships now authorized require twelve to sixteen of the 10,000-ton cruisers to round out their battle fleet. Since we have parity with Great Britain in battleships, and since we have eight first-line cruisers now under way, and ten scout cruisers in commission, our needs for combat purposes are fairly well met.

Consequently it may be concluded that the new twenty-five ships are for commerce protection, which task Great Britain relegates to much less aggressive ships weighing about 5000 tons. Whether our trans-oceanic shipping is extensive and important enough to warrant a cruiser-building program costing us \$400,000,000 in initial outlay (and even more to the other nations in their efforts to keep up), and arousing in addition the suspicions of the maritime powers, is a question worthy of careful thought.

Furthermore, protection against what? Just now we do not fear Great Britain, and "for the rest, Anglo-American friendship *must* be maintained."

## Guidance for Business

**N**EVER were so many facts and so much advice put before American business men on the course of industry and trade as they have been considering in the past few weeks. And never were leaders in industry more put to it for satisfying answers to their questionings of the new year. What Col. Frank A. Scott says in this paragraph from his contribution to *THE IRON AGE* of Jan. 5 was written for the machine tool trade, but may well be pondered on by leaders in every department of iron and steel manufacture, and in all the industries which have iron and steel for their raw materials:

There has been enough prosperity to go around most years since the war, but American metal workers have seemed oblivious of this. From the steel makers right through to the small fry they have intensified an already highly competitive situation by over-extension of sales efforts. This cannot continue. Industry can advance only when it is profitable. There is an opportunity here in the American metal-working field for business leadership of a high type. Schooling is needed in the development and maintenance of a code of business ethics which shall include serving the trade well, while maintaining a price level sufficiently high to sustain normal development and yield a profit.

## The Road That Taps Katanga

**A**N important event of Nov. 27 was the completion of the Benguela Railway to the Angola-Belgian Congo border in Africa. The Belgian Congo Government is now rushing its own part of the line, about 460 miles in length, which will link the Benguela Railway with the line that runs eastward to Beira. When this has been done there will be an east-west transcontinental line, about 2600 miles in length across the southern half of Africa; and since it passes right through the great copper ore region of Katanga, the metal thereof will have to be carried only about 1250 miles by rail and 4900 miles by sea, instead of 1350 miles by rail and 8000 miles by sea as heretofore.

This is an event reminiscent of the uniting of our own Pacific railroads, which were connected about 60 years ago, and for which the inspiration was likewise the opening of mining regions. Ever since Jason and his Argonauts went in search of the Golden Fleece, which we believe to have meant placer mines, the metals, precious and base, have always been the incentive to great pioneering.

Robert Williams conceived the Benguela Railway twenty-five years ago. Until three or four years ago he had to struggle for the money with which to build it. Then it became appreciated that Katanga was one of the greatest copper regions ever discovered and that its exploitation was being retarded not only by the roundabout and costly transportation for its service, but also by the physical incapacity of all available lines to carry the tonnage that it offered. So at length the new line was vigorously adopted and consummated. It will great-



ly cheapen Katanga copper and will swell the world's supply.

That is not altogether welcome to American copper producing interests, but they are sufficiently sporting to view the success of other fellows with good grace. The Katanga mines are controlled in Belgium and have done much to rehabilitate that chivalrous little country, where they are regarded as something akin to holy. In consequence, brokers who have suggested that they might be sold at a fine figure to some American colossus have been regularly given the cold shoulder.

### Metricists Bearding the Lion

**G**REAT BRITAIN apparently is going through the throes of agitation in favor of compulsory use of the metric system, just as is the United States. At a recent meeting of the "Decimal Association" in London it was pointed out that the use of metric weights and measures was made lawful for general trade in Great Britain 30 years ago. But "the trading community as a whole have not

manifested any eagerness to take advantage of this permissive legislation," to quote from one report read at the meeting.

As in the United States, the metric system has not appealed in Great Britain to those who make largest use of weights and measures in carrying on exacting work. It has been permissible in the United States much longer than in Great Britain; but here, too, it has failed to make headway. It simply does not fill the needs in general of manufacturers of most products. If it did, it would long ago have been adopted as standard.

Proponents argue that it is essential in developing foreign trade. That this assumption is false is shown by the fact that Great Britain and the United States, the two great exporting countries of the world, have built up their enormous overseas commerce without the use of the metric system. Together they control one-third (42 per cent, if the British Dominions be included) of all the external trade of the three-score or more of countries participating in foreign trade. This proportion is not diminishing, in spite of the dire predictions of the metricists. Neither is it likely to do so.

## Road-Building Developments Create New Uses for Steel

Exhibit of Equipment at Cleveland Emphasizes the Growing Demands of Builders Upon Steel Makers and Other Metalworking Manufacturers

**T**HE prominence that the building of road-making machinery has attained, the growing demands of builders of this equipment upon steel makers and other manufacturers in the metalworking field, the large number of metalworking industries that supply parts or equipment for road building and the building of road-making equipment and the increased use of iron and steel, including new uses in the road building industry, were some of the impressions gained by a visit at the exposition held in connection with the twenty-fifth annual convention of the American Road Builders' Association held at the Public Hall, Cleveland, last week. The exhibit, for years conspicuous for its size, was larger than ever before. The machinery and other equipment displayed amounted to 300 carloads.

Conveying and handling equipment including cranes of many types, conveyors, hoists, elevators, tractors, industrial locomotives, trucks, trailers, steam shovels, buckets and winches were shown in a large number of exhibits. Other manufacturers showed concrete mixers, excavators, crushers, graters and other special machinery used in road building.

The tendency among builders of road making machinery, as indicated by the exhibit, is to improve their labor-saving machines by improved design and construction and the use of better materials to withstand hard service. Many of the machines were equipped with high friction bearings, the use of which has spread rapidly in this field and several makers of roller bearings had exhibits.

The wide scope of the exhibits gave some indication of the number of metalworking industries that share in the benefits of road-building activities. The products of these industries included axles, stampings, truck bodies, bins, chipping hammers, air compressors, pneumatic and electric drills, motors, engines of various types, forgings, gears, pumps, screens, manganese and alloy steel castings and reinforcing steel wire mesh. Steel castings were exhibited by a number of foundries.

New uses for steel and possibilities for greater uses in certain fields were shown in some of the exhibits and quite a few indicated that manufacturers of some general lines, such as stamping, are turning their attention to specialties. A number of exhibits of pressed

steel road, curb and sidewalk forms and other forms used in concrete construction indicate that considerable steel is being used in that particular field. Another exhibit was a steel paving guard to protect the edges of paving. Galvanized culverts and perforated steel drain pipe were shown by several manufacturers and centrifugally cast culvert pipe was exhibited by the American Casting Co., Birmingham. Stamped steel liner plates to take the place of timbering in tunnel construction were shown by the Commercial Shearing & Stamping Co., Youngstown. A snow fence with boards of galvanized sheets attached to pressed steel supports is a new product to replace the wood fence that has long been used for this purpose. This was shown by the Northfield Iron Co., Northfield, Minn. One manufacturer showed a track for use particularly by contractors on short sections of muddy roads that would otherwise be impassable for trucks. This is made of heavy gage curved troughs providing traction for wheels, the troughs being held in parallel position by corrugated struts. It is built in 10-ft. sections for easy handling and raising.

Metal wheels of numerous types were shown and some of these types indicated a broadening of the field for these wheels as a substitute for wood wheels. Manufacturers report considerable increase in the demand for steel wheels with rubber tires for use on threshers and other portable machines that are hauled on concrete roads. Among the numerous exhibits of steel wheels by French & Hecht, Davenport, Iowa, was a new rubber-tired wheelbarrow wheel.

Cable guard rail for protecting the dangerous points in highways is now affording considerable outlet for steel, not only for the cable but also for the supporting members. A guard rail having supports of malleable castings constructed with springs and equalizers to afford resiliency in order to absorb the forces of severe impact was exhibited. The Cleveland Hardware Co., Cleveland, showed a line of anchor rods, cable I bolts and other drop forge parts that it has brought out for use in erecting cable guard rails. Another new drop forge product exhibited by this company is an open eye snap for use in attaching tire chains to truck wheels.

# Iron and Steel Markets

## Better Balanced Steel Market

With Increasing Demands from Automobile Industry and  
Heavier Requirements in Other Consuming Lines, Steel  
Output Continues to Broaden—Prices Firmer

**F**INISHED steel requirements are not only growing in volume, but are becoming better balanced. Avenues of consumption that only recently were taking relatively small tonnages of steel are making heavier drafts on mill production.

The outstanding example is the automobile industry with its steadily mounting demands. Railroad buying is also a major market factor, with a continuance of rail contracting and the promise of additional large purchases of cars and locomotives. In tin plate, increased specifications for March and April shipment have brought output up to 75 per cent of mill capacity.

While demand for tubular products continues to lag, the oil industry is taking more well pipe and two large line pipe inquiries, one of them for 14,000 tons, have appeared in southern California. Oil storage tanks, particularly for western Texas, call for a steady flow of plate tonnage. Meanwhile better farmer buying is reflected in the high output of implement plants, and a sustained volume of construction work is indicated.

Steel output continues to gain, although at a retarded rate. At Chicago, a leading center for railroad buying, two steel works blast furnaces have gone in, making a total of five blown in since Jan. 1, and ingot output has reached 80 per cent of capacity. At Pittsburgh the Carnegie Steel Co. has lighted a furnace and is preparing to blow in another. In the Youngstown district, however, a recession in new orders and specifications has delayed further increases in production. The operations of Steel Corporation plants are estimated at 78 per cent, as against 75 per cent a week ago.

Steel specifications from the motor car industry, in the case of some mills, are almost double the releases of last month. Bars, sheets, strip steel, alloy steel bars and bolts and nuts have all been affected by the increasing requirements of automotive plants. With a large supply of cars needed to stock dealers with new models, heavy automobile production seems assured for the first quarter at least. Current output is estimated at 20 to 25 per cent above January, last year, when 238,926 cars and trucks were manufactured. Automobile parts plants are operating at full capacity, and a Cleveland drop forge company has placed an order for 3500 tons of alloy steel bars. The gain in automobile output has brought the index of employment in Detroit to the highest point since the summer of 1926.

Fresh business in steel from other sources, although in reduced volume following heavy specifying in December, exceeds expectations. A fair volume of small-lot orders for bars, plates and shapes is coming from buyers who underestimated

their needs or, in adhering to a hand-to-mouth buying policy, failed to take advantage of lower prices.

Prices generally are well maintained, and in some lines are stronger. Makers of cold-rolled strip have announced an advance of \$3 a ton, and, following the stiffening of prices on plate mill sizes of wide strip, the plate market is more firmly established at 1.80c., Pittsburgh. Stronger prices on hot and cold-rolled strip will mainly affect second quarter business, since most mills are well booked for the current quarter. Similarly, an effort to advance plates, shapes and bars, now regarded as an early possibility, would have comparatively little effect on invoiced prices until next quarter.

For recent railroad car orders 15,000 tons of plates has been scheduled at Chicago mills. While the week's car buying was confined to a few hundred cars, an inquiry for 2000 refrigerator cars from the Pacific Fruit Express is expected to be the forerunner of another bulge in equipment buying. The Illinois Central's expected inquiry may call for 4000 cars.

Rail orders totaled about 25,000 tons at Chicago, of which 15,000 tons was for the Pere Marquette, while at Cleveland the Nickel Plate ordered 11,500 tons. Additional rail inquiry now definitely before Chicago mills from Western roads amounts to 75,000 tons.

Chicago and Cleveland have led in pig iron sales, and the total of first quarter buying at Chicago in December and so far this month has exceeded 300,000 tons, while at Cleveland 25,000 tons has been added to recent heavy purchases. Ohio and Michigan foundries producing automobile castings are increasing their melt, and furnaces which serve them expect to reduce their stock piles, as they probably will ship more iron this month than they make. New York iron sales were 10,000 tons, and at Philadelphia buying has been increased to take advantage of quotations made before the 50c. price advance on foundry grades, now effective.

Structural steel lettings at Chicago totaled 13,000 tons. At Cleveland 20,000 tons is required for three buildings for the Cleveland Union Terminals Co., bringing the total of pending fabricated steel work to more than 41,000 tons.

Fabricated structural steel bookings of 205,165 tons in December brought the year's total to 2,750,700 tons, or 72 per cent of capacity. This exceeded 1926 by nearly 8 per cent and, except for 1925, is the highest total on record.

Greater strength in foundry iron in eastern Pennsylvania has advanced THE IRON AGE pig iron composite price to \$17.67, from \$17.59 last week.



# A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics  
At Date, One Week, One Month, and One Year Previous

Pig Iron, Per Gross Ton:	Jan. 17, 1928	Jan. 10, 1928	Dec. 20, 1927	Jan. 18, 1927
No. 2, fdy., Philadelphia.	\$20.20	\$19.76	\$19.76	\$22.26
No. 2, Valley furnace....	17.25	17.25	17.25	18.50
No. 2, Southern, Cin'tl....	19.69	19.69	19.69	21.69
No. 2, Birmingham.....	16.00	16.00	16.00	18.00
No. 2 foundry, Chicago*..	18.50	18.50	18.50	21.00
Basic, del'd eastern Pa....	19.50	19.50	19.50	21.50
Basic, Valley furnace....	17.00	17.00	17.00	18.00
Valley Bessemer, del. P'gh	19.26	19.26	19.26	21.26
Malleable, Chicago*.....	18.50	18.50	18.50	21.00
Malleable, Valley.....	17.25	17.25	17.50	18.50
Gray forge, Pittsburgh....	18.51	18.51	18.51	19.76
L. S. charcoal, Chicago....	27.04	27.04	27.04	27.04
Ferromanganese, furnace..	100.00	100.00	100.00	100.00

Rails, Billets, etc., Per Gross Ton:	Jan. 17, 1928	Jan. 10, 1928	Dec. 20, 1927	Jan. 18, 1927
O.-h. rails, heavy, at mill..	\$43.00	\$43.00	\$43.00	\$43.00
Light rails at mill.....	36.00	36.00	36.00	36.00
Bess. billets, Pittsburgh...	33.00	33.00	33.00	35.00
O.-h. billets, Pittsburgh...	33.00	33.00	33.00	35.00
O.-h. sheet bars, P'gh....	34.00	34.00	34.00	36.00
Forging billets, P'gh....	38.00	38.00	38.00	40.00
O.-h. billets, Phila.....	38.30	38.30	38.30	40.30
Wire rods, Pittsburgh....	42.00	42.00	40.00	45.00
Skelp, grvd. steel, P'gh, lb.	1.80	1.80	1.80	1.90

Finished Iron and Steel,	Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia....	2.12	2.12	2.12	2.22	
Iron bars, Chicago.....	1.90	1.90	1.90	2.00	
Steel bars, Pittsburgh....	1.80	1.80	1.80	2.00	
Steel bars, Chicago.....	1.90	1.90	1.90	2.10	
Steel bars, New York....	2.14	2.14	2.14	2.34	
Tank plates, Pittsburgh...	1.80	1.80	1.80	1.90	
Tank plates, Chicago.....	1.90	1.90	1.90	2.10	
Tank plates, New York...	2.12 1/2	2.12 1/2	2.12 1/2	2.24	
Beams, Pittsburgh.....	1.80	1.80	1.80	2.00	
Beams, Chicago.....	1.90	1.90	1.90	2.10	
Beams, New York.....	2.09 1/2	2.09 1/2	2.09 1/2	2.34	
Steel hoops, Pittsburgh...	2.20	2.20	2.20	2.30	

\*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Sheets, Nails and Wire,	Jan. 17, 1928	Jan. 10, 1928	Dec. 20, 1927	Jan. 18, 1927
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 24, P'gh	2.80	2.80	2.80	2.90
Sheets, black, No. 24, Chi-				
cago dist. mill.....	3.00	3.00	2.90	3.10
Sheets, galv., No. 24, P'gh	3.65	3.65	3.65	3.75
Sheets, galv., No. 24, Chi-				
cago dist. mill.....	3.85	3.85	3.70	3.95
Sheets, blue, 9 & 10, P'gh	2.10	2.10	2.10	2.25
Sheets, blue, 9 & 10, Chi-				
cago dist. mill.....	2.20	2.20	2.15	2.40
Wire nails, Pittsburgh....	2.55	2.55	2.50	2.65
Wire nails, Chicago dist.				
mill.....	2.55	2.55	2.55	2.70
Plain wire, Pittsburgh....	2.40	2.40	2.40	2.50
Plain wire, Chicago dist.				
mill.....	2.45	2.45	2.45	2.55
Barbed wire, galv., P'gh..	3.25	3.25	3.20	3.35
Barbed wire, galv., Chi-				
cago dist. mill.....	3.25	3.25	3.25	3.40
Tin plate, 100 lb. box, P'gh	\$5.25	\$5.25	\$5.25	\$5.50

Old Material, Per Gross Ton:	Jan. 17, 1928	Jan. 10, 1928	Dec. 20, 1927	Jan. 18, 1927
Heavy melting steel, P'gh..	\$15.00	15.25	15.00	16.75
Heavy melting steel, Phila..	13.50	13.50	13.50	15.50
Heavy melting steel, Ch'go	12.50	12.50	12.25	13.25
Carwheels, Chicago.....	14.00	14.00	13.50	15.50
Carwheels, Philadelphia...	15.50	15.50	15.50	16.50
No. 1 cast, Pittsburgh....	14.50	14.50	14.50	16.00
No. 1 cast, Philadelphia...	16.00	16.00	16.00	17.00
No. 1 cast, Ch'go (net ton)	14.50	14.50	14.00	16.50
No. 1 RR. wrot. Phila....	15.25	15.25	15.25	17.00
No. 1 RR. wrot. Ch'go (net)	11.00	11.50	10.50	12.75

Coke, Connellsville, Per Net Ton at Oven:	Jan. 17, 1928	Jan. 10, 1928	Dec. 20, 1927	Jan. 18, 1927
Furnace coke, prompt....	\$2.75	\$2.75	\$2.75	\$3.50
Foundry coke, prompt....	3.75	3.75	3.75	4.50

Metals,	Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York..	14.25	14.25	14.25	13.50	
Electrolytic copper, refinery	13.87 1/2	13.87 1/2	13.75	13.12 1/2	
Zinc, St. Louis.....	5.62 1/2	5.65	5.67 1/2	6.52 1/2	
Zinc, New York.....	5.97 1/2	6.00	6.02 1/2	6.87 1/2	
Lead, St. Louis.....	6.30	6.30	6.30	7.45	
Lead, New York.....	6.50	6.50	6.50	7.65	
Tin (Straits), New York...	54.25	56.12 1/2	58.12 1/2	66.50	
Antimony (Asiatic), N. Y.	11.00	11.25	11.25	15.00	

## Pittsburgh

### Automobile Industry Specifying Steel Freely—Price Tendency Firmer

PITTSBURGH, Jan. 17.—There is active specifying of steel by the motor car industry and some manufacturers serving that industry find this month has almost doubled the tonnage releases of last month. Otherwise the steel market is in one of those digestive periods that almost invariably follow heavy specifications and are attended by heavier shipments than new orders. In bars, plates, shapes, sheet and wire nails, the market is quieter than it has been though there has been some acceleration of shipments from the mills directly into consumption. The situation also is somewhat irregular as to steel works and rolling mill operations. While the larger units have succeeded in getting ingot production up to about 75 per cent of capacity, the smaller companies still lack sufficient business to furnish a 65 per cent operation.

If there is a definite tendency to prices, it is higher. Sheet makers have succeeded in getting full quotations on small lots of the ordinary finishes and some satisfaction is taken from the fact that on a recent railroad inquiry for black sheets the price named by 12 of the 13 mills which quoted was 2.90c., base, Pittsburgh. Following the recent revision of hot rolled strip prices, cold rolled strip makers have announced a minimum price of 2.90c. on lots of three tons and over and 3.15c. on less than three tons. Incidentally, the adoption of prices on wide strips, based on plates at 1.80c., has done much to clarify the price situation in the latter

product. Wide strip makers seeking business in plate mill sizes and gages usually encountered 1.75c., base, on plates, the price that consumers still are enjoying on tonnages specified prior to the end of last month, and to get orders it was necessary to meet or go below that price.

It would not be surprising if in the effort to correct what is commonly said to be an unfavorable price situation, manufacturers with an eye to second quarter business would soon stiffen up on plates, shapes and bars. The recent strengthening in strip prices is largely for its effect upon second quarter tonnages. It is pretty generally conceded that order books in sheets are too heavy for higher prices to become effective in this quarter and the situation is not greatly different in wire nails. Higher prices are asked on reinforcing bars.

Motor car builders continue to exert considerable pressure against steel prices in the effort to maintain profits in the face of lower prices for the cars, but there is no evidence of success in that direction.

The Carnegie Steel Co. recently lighted one of its Carrie furnaces and is said to be getting ready to start another of that group. These furnaces serve the Homestead Works, which lately has had a considerable increase in mill operations. In the Youngstown district an independent steel works furnace was scheduled to start this week, but lighter orders brought a postponement.

There is little activity in the pig iron market. Scrap prices are yielding under the lack of consumer interest in supplies and freer offerings, which encourage dealers to defer covering against short sales. Slack coal is firm in price, but the coal and coke market as a whole still labors under an excessive supply.

**Pig Iron.**—A Grove City, Pa., consumer recently closed for about 1500 tons of foundry iron, most of which was of special analysis for engine cylinders. In the sale was 500 tons of No. 1 foundry, which was sold at \$18.25, with the sale based at Sharpsville, Pa., having a freight rate to destination of \$1.39, compared with \$1.64 from other Valley points. This is the only recent sale of importance, other transactions in foundry iron running to single carloads. Only small sales of Bessemer and malleable iron are noted and interest in basic iron is very low. Some talk is heard of an advance in prices, but the market this week gives no real evidence of such a development.

**Prices per gross ton, f.o.b. Valley furnace:**

Basic .....	\$17.00
Bessemer .....	17.50
Gray forge .....	16.75
No. 2 foundry.....	17.25
No. 3 foundry.....	16.75
Malleable .....	\$17.25 to 17.50
Low phosphorus, copper free.....	27.00

Freight rate to the Pittsburgh or Cleveland district, \$1.76.

**Ferroalloys.**—A good movement of the commonly used ferroalloys is noted on contracts in keeping with the larger consumption incident to heavier steel works operations. Producers have yet to benefit from the December advance of \$10 a ton in ferromanganese, as much of the material now moving to consumers is against December specifications on old contracts or sales made for December shipment at about the time the advance was made. A few consumers have not yet contracted for tonnages for first half of 1928 shipment.

**Semi-Finished Steel.**—The decline in sheet bars reported from Cleveland has not extended to this or the Youngstown district, where producers still are quoting \$34. At Youngstown a fairly large movement at that price is reported. Pittsburgh no longer is much of a market for sheet bars, as the few mills that buy them are covered by requirement contracts with regular sources of supply and their buying is no longer subject to open competition. The tonnage here is greater in billets and slabs and no sales are noted at under \$33, base. Wire rods are priced at \$42, base Pittsburgh or Cleveland, but only a few small sales are being made at that price, as most users are covered for this quarter at a lower figure.

**Rails and Track Supplies.**—The Nickel Plate road is in the market for 3000 to 4000 tons of spikes and tie plates. Generally, the demand for track supplies is of moderate proportions, but producers have fair-sized orders for shipment later with the starting of rail laying. The local standard-section rail mill is running well and has sufficient business to carry it well through the spring months. Light section rails are slow. Prices are firm.

**Wire Products.**—Manufacturers are well satisfied with the price situation, for while they are yet to profit much by the higher schedule on nails, at least they are encountering no deviations from that schedule. Shipments of nails are heavy, with distributors still get-

ting the benefit of the old price and the old card of extras, since the current movement is largely on specifications on old contracts.

**Tubular Goods.**—The volume of pipe business does not vary much, but some makers note a slightly improved demand for oil country pipe, especially from California. Oil statistics are favorable on the score of production, but unfavorable in the amount above the ground. Standard-weight pipe will do better as building and construction activities increase. Boiler tubes still are slow but some improvement is reported in mechanical tubing as automobile builders increase production.

**Sheets.**—Continued gain in the orders from automobile and automobile body builders is the bright spot in the situation. Strictly new business is moderate, because so many consumers are already covered against their requirements for this quarter and generally at lower prices than now are asked. Prices show the firmer tendency that usually accompanies full order books, although it is not possible yet to quote a single price on each grade. Some business in black sheets is being taken at 2.90c., base, Pittsburgh, and that price was quoted by 12 of the 13 mills that entered prices against the New York Central inquiry. The American Sheet & Tin Plate Co., last week operated 72 per cent of its sheet mills and independent companies at approximately 90 per cent.

**Tin Plate.**—Tin plate mill operations still are on the increase in keeping with the fact that specifications for March and April shipments are fairly heavy. This branch of the industry now has at least 75 per cent of capacity engaged. Prices are firm.

**Cold-Finished Steel Bars and Shafting.**—As there were heavy specifications last month for shipment in January it was expected this month would see a substantial lessening in orders, but the more common experience of makers here is that orders and releases are not materially smaller than in December. Prices are firmly maintained. The leading maker of turned and ground shafting has announced an advance of \$2 a ton effective Jan. 16, and now is quoting carloads, f.o.b. mill, 1 3/16-in. to 1 1/2-in., 2.90c., base; 1 9/16-in. to 1 7/8-in., 2.75c.; 1 15/16-in. to 2 1/8-in., 2.60c., and 2 15/16-in. to 7-in., 2.45c., the prices being subject to the standard card of extras dated Dec. 24, 1927. This calls for an extra of 10c. per 100 lb. for shipments of less than carload lots and for quantity extras for lots of 4000 lb. and has obviated the necessity of the former charge of 25c. per 100 lb. for less than carload lots.

**Bolts, Nuts and Rivets.**—The movement of bolts and nuts has shown measurable improvement this month over December, but the same betterment has not occurred in rivets. Prices are firm.

**Bars, Plates and Shapes.**—New releases and specifications have been lighter in the past week, but this is regarded merely as the result of the fact that consumers have been getting heavy shipments against orders given last month. The plate market appears firmer

## THE IRON AGE Composite Prices

### Finished Steel Jan. 17, 1928, 2.314c. a Lb.

One week ago.....	2.314c.
One month ago.....	2.314c.
One year ago.....	2.439c.
10-year pre-war average.....	1.689c.

Based on steel bars, beams, tank plates, plain wire, open-hearth rails, black pipe and black sheets. These products constitute 86 per cent of the United States output of finished steel.

	High		Low	
1927	2.453c.	Jan. 4:	2.293c.	Oct. 25
1926	2.453c.	Jan. 5:	2.403c.	May 18
1925	2.560c.	Jan. 6:	2.396c.	Aug. 18
1924	2.789c.	Jan. 15:	2.460c.	Oct. 14
1923	2.824c.	Apr. 24:	2.446c.	Jan. 2

### Pig Iron Jan. 17, 1928, \$17.67 a Gross Ton

One week ago.....	\$17.59
One month ago.....	17.54
One year ago.....	19.39
10-year pre-war average.....	15.72

Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

	High		Low	
1927	\$19.71.	Jan. 4:	\$17.54.	Nov. 1
1926	21.54.	Jan. 5:	19.46.	July 13
1925	22.50.	Jan. 13:	18.96.	July 7
1924	22.88.	Feb. 26:	19.21.	Nov. 3
1923	30.86.	Mar. 20:	20.77.	Nov. 20



# Mill Prices of Finished Iron and Steel Products

## Iron and Steel Bars

### Soft Steel

#### Base Per Lb.

F.o.b. Pittsburgh mills.....	1.80c.
F.o.b. Chicago.....	1.90c.
Del'd Philadelphia.....	2.12c.
Del'd New York.....	2.14c.
Del'd Cleveland.....	1.99c.
F.o.b. Cleveland.....	1.80c.
F.o.b. Buffalo.....	1.90c.
F.o.b. Birmingham.....	1.95c. to 2.05c.
C.i.f. Pacific ports.....	2.35c.
F.o.b. San Francisco mills.....	2.35c. to 2.40c.

### Billet Steel Reinforcing

F.o.b. Pittsburgh mills.....	1.90c.
F.o.b. Birmingham.....	2.00c. to 2.10c.

### Rail Steel

F.o.b. mills east of Chicago district.....	1.65c. to 1.70c.
F.o.b. Chicago Heights mill.....	1.80c.

### Iron

Common iron, f.o.b. Chicago.....	1.90c.
Refined iron, f.o.b. P'gh mills.....	2.75c.
Common iron, del'd Philadelphia.....	2.12c.
Common iron, del'd New York.....	2.14c.

## Tank Plates

#### Base Per Lb.

F.o.b. Pittsburgh mills.....	1.80c.
F.o.b. Chicago.....	1.90c.
F.o.b. Birmingham.....	1.95c. to 2.05c.
Del'd Cleveland.....	1.99c.
Del'd Philadelphia.....	2.05c.
F.o.b. Coatesville.....	1.95c.
F.o.b. Sparrows Point.....	1.95c.
F.o.b. Buffalo.....	1.90c.
Del'd New York.....	2.12 1/2 c.
C.i.f. Pacific ports.....	2.30c.

## Structural Shapes

#### Base Per Lb.

F.o.b. Pittsburgh mills.....	1.80c.
F.o.b. Chicago.....	1.90c.
F.o.b. Birmingham.....	1.95c. to 2.05c.
F.o.b. Buffalo.....	1.90c.
F.o.b. Bethlehem.....	1.95c.
Del'd Cleveland.....	1.99c.
Del'd Philadelphia.....	2.08c.
Del'd New York.....	2.09 1/2 c.
C.i.f. Pacific ports.....	2.35c.

## Hot-Rolled Flats (Hoops, Bands and Strips)

#### Base Per Lb.

All gages, 2 in. and narrower, P'gh.....	2.10c. to 2.20c.
All gages, wider than 2 in., to 6 in., P'gh.....	2.00c. to 2.10c.
*All gages, 6 in. and wider, P'gh.....	1.80c. to 1.90c.
All gages, narrower than 6 in., Chicago.....	2.40c.
All gages, 6 in. and wider, Chicago.....	2.20c. to 2.40c.

\*Mills follow plate or sheet prices according to gage on wider than 14 in.

## Cold-Finished Steel

#### Base Per Lb.

Bars, f.o.b. Pittsburgh mills.....	2.20c.
Bars, f.o.b. Chicago.....	2.20c.
Bars, Cleveland.....	2.25c.
Shafting, ground, f.o.b. mill.....	2.35c. to 2.50c.
Strips, under 12 in., 1 up to 3 tons, P'gh.....	3.00c. to 3.15c.
Strips, under 12 in., 1 up to 3 tons, Cleveland.....	3.00c. to 3.15c.
Strips, under 12 in., 1 up to 3 tons, del'd Chicago.....	3.20c. to 3.45c.
Strips, under 12 in., 1 up to 3 tons, Worcester.....	3.25c. to 3.40c.

\*According to size.

## Wire Products

(To jobbers in car lots, f.o.b. Pittsburgh and Cleveland)

#### Base Per Keg

Wire nails.....	\$2.55
Galvanized nails.....	4.55
Galvanized staples.....	3.25
Polished staples.....	3.00
Cement coated nails.....	2.55

#### Base Per 100 Lb.

Bright plain wire, No. 9 gage.....	\$2.40
Annealed fence wire.....	2.55
Spring wire.....	3.40
Galv'd wire, No. 9.....	3.00
Barbed wire, galv'd.....	\$3.20 to 3.25
Barbed wire, painted.....	2.95 to 3.00

Chicago district mill and delivered Chicago prices are \$1 per ton above the foregoing. Birmingham mill prices \$3 a ton higher; Worcester, Mass., (wire) mill \$3 a ton higher on production of that plant; Duluth, Minn., mill \$2 a ton higher; Anderson, Ind., \$1 higher.

### Woven Wire Fence

#### Base to Retailers Per Net Ton

F.o.b. Pittsburgh.....	\$65.00
F.o.b. Cleveland.....	65.00
F.o.b. Anderson, Ind.....	66.00
F.o.b. Chicago district mills.....	67.00
F.o.b. Duluth.....	68.00
F.o.b. Birmingham.....	68.00

## Sheets

### Blue Annealed

#### Base Per Lb.

Nos. 9 and 10, f.o.b. Pittsburgh.....	2.10c. to 2.20c.
Nos. 9 and 10, f.o.b. Chicago dist. mill.....	2.20c. to 2.30c.
Nos. 9 and 10, del'd Cleveland.....	2.24c. to 2.29c.
Nos. 9 and 10, del'd Philadelphia.....	2.42c. to 2.47c.
Nos. 9 and 10, f.o.b. Birmingham.....	2.25c. to 2.30c.

### Box Annealed, One Pass Cold Rolled

No. 24, f.o.b. Pittsburgh.....	2.80c. to 2.90c.
No. 24, f.o.b. Chicago dist. mill.....	3.00c.
No. 24, del'd Cleveland.....	2.99c. to 3.09c.
No. 24, del'd Philadelphia.....	3.12c. to 3.22c.
No. 24, f.o.b. Birmingham.....	3.05c.

### Metal Furniture Sheets

No. 24, f.o.b. Pittsburgh, A grade.....	3.95c. to 4.05c.
No. 24, f.o.b. Pittsburgh, B grade.....	3.75c. to 3.85c.

### Galvanized

No. 24, f.o.b. Pittsburgh.....	3.65c. to 3.75c.
No. 24, f.o.b. Chicago dist. mill.....	3.85c.
No. 24, del'd Cleveland.....	3.84c. to 3.94c.
No. 24, del'd Philadelphia.....	3.97c. to 4.07c.
No. 24, f.o.b. Birmingham.....	3.90c.

### Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh.....	2.90c. to 3.00c.
No. 28, f.o.b. Chicago dist. mill.....	3.00c. to 3.10c.

### Automobile Body Sheets

No. 20, f.o.b. Pittsburgh.....	4.00c.
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### Long Ternes

No. 24, 8-lb. coating, f.o.b. mill primes.....	4.10c.
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## Tin Plate

#### Per Base Box

Standard cokes, f.o.b. P'gh district mills.....	\$5.25
Standard cokes, f.o.b. Gary and Elwood, Ind.....	5.35

## Terne Plate

(F.o.b. Morgantown or Pittsburgh)

(Per package, 20 x 28 in.)

8-lb. coating I.C. \$11.40.....	25-lb. coating I.C. \$17.30
15-lb. coating I.C. 14.45.....	30-lb. coating I.C. 18.75
20-lb. coating I.C. 15.80.....	40-lb. coating I.C. 20.85

## Alloy Steel Bars

(F.o.b. Pittsburgh, Chicago or Ohio Mill)

S. A. E.  
Series  
Numbers

#### Base Per 100 Lb.

2100* (1/2% Nickel, 0.10% to 0.20% Carbon).....	\$2.90 to \$3.00
2300 (3 1/2% Nickel).....	4.00 to 4.10
2500 (5% Nickel).....	5.00 to 5.25
3100 (Nickel Chromium).....	3.00 to 3.10
3200 (Nickel Chromium).....	4.75 to 5.00
3300 (Nickel Chromium).....	6.75 to 7.00
3400 (Nickel Chromium).....	6.00 to 6.25
5100 (Chromium Steel).....	3.00 to 3.10
5200* (Chromium Steel).....	7.00 to 7.50
6100 (Chrom. Vanadium bars).....	4.00 to 4.15
6100 (Chrom. Vanad. spring steel).....	3.50 to 3.75
9250 (Silicon Manganese spring steel).....	3.00 to 3.15

Carbon Vanadium (0.45% to 0.55% Carbon, 0.15% Vanad.).....	4.10 to 4.20
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Nickel Chrome Vanadium (0.60 Nickel, 0.50 Chrom., 0.15 Vanad.).....	4.05 to 4.20
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Chromium Molybdenum bars (0.80—1.10 Chrom., 0.25—0.40 Molyb.).....	4.00 to 4.25
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Chromium Molybdenum bars (0.50—0.70 Chrom., 0.15—0.25 Molyb.).....	3.05 to 3.10
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Chromium Molybdenum spring steel (1—1.25 Chrom., 0.30—0.50 Molybdenum).....	4.50 to 4.75
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Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in. the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 in. down to and including 2 1/2 in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

\*Not S. A. E. specification, but numbered by manufacturers to conform to S. A. E. system.

## Rails

#### Per Gross Ton

Standard, f.o.b. mill.....	\$43.00
Light (from billets), f.o.b. mill.....	36.00
Light (from rail steel), f.o.b. mill.....	34.00
Light (from billets), f.o.b. Ch'go mill.....	36.00

## Track Equipment

#### Base Per 100 Lb.

Spikes, 3/4 in. and larger.....	\$2.80
Spikes, 1/2 in. and smaller.....	\$2.75 to 2.80
Spikes, boat and barge.....	3.10
Tie plates, steel.....	2.25
Angle bars.....	2.75
Track bolts, to steam railroads.....	3.80 to 4.00
Track bolts, to jobbers, all sizes, per 100 count.....	70 per cent off list

## Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

Butt Weld		Iron	
Inches	Steel	Inches	Galv.
1/2.....	45	1/4 to 3/8.....	+11
3/4.....	51	1/2.....	22
1.....	56	3/4.....	28
1 1/4.....	60	1 to 1 1/2.....	30
1 1/2 to 3.....	62		13

Lap Weld		Iron	
Inches	Steel	Inches	Galv.
2.....	55	2.....	23
2 1/2 to 6.....	59	2 1/2.....	26
7 and 8.....	56	3 to 6.....	28
9 and 10.....	54	7 to 12.....	26
11 and 12.....	53		11

### Butt Weld, extra strong, plain ends

1/4.....	41	1/4 to 3/8.....	+19
1/2.....	47	1/2.....	21
3/4.....	53	3/4.....	28
1.....	58	1 to 1 1/2.....	30
1 1/4.....	60		14
1 1/2 to 3.....	61		

### Lap Weld, extra strong, plain ends

2.....	53	2.....	23
2 1/2 to 4.....	57	2 1/2 to 4.....	29
4 1/2 to 6.....	56	4 1/2 to 6.....	28
7 to 8.....	52	7 to 8.....	21
9 and 10.....	45	9 to 12.....	16
11 and 12.....	44		2

To the large jobbing trade the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5 and 5%, and on galvanized by 1 1/2 points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to large jobbers by one point with supplementary discounts of 5 and 2 1/2%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2 1/2 points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

## Boiler Tubes

### Base Discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2 to 2 1/2 in.....	27	1 1/2 in.....	+18
2 1/2 to 3 in.....	37	1 3/4 to 2 in.....	+8
3 in.....	40	2 to 2 1/2 in.....	2
3 1/2 to 3 3/4 in.....	42 1/2	2 1/2 to 3 in.....	7
4 to 13 in.....	46	3 1/2 to 4 1/2 in.....	9

Beyond the above discounts, 7 fives extra are given on lap welded steel tubes and 2 tens to 2 tens and 1 five on charcoal iron tubes.

### Standard Commercial Seamless Boiler Tubes

Cold Drawn		Hot Rolled	
1 in.....	60	3 in.....	45
1 1/4 to 1 1/2 in.....	52	3 1/2 to 3 3/4 in.....	47
1 3/4 in.....	36	4 in.....	50
2 to 2 1/2 in.....	31	4 1/2, 5 and 6 in.....	45
2 1/2 to 2 3/4 in.....	39		

2 and 2 1/2 in.....	37	3 1/4 and 3 1/2 in.....	53
2 1/2 and 2 3/4 in.....	45	4 in.....	56
3 in.....	51	4 1/2, 5 and 6 in.....	51

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

## Seamless Mechanical Tubing

#### Per Cent Off List

Carbon, 0.10% to 0.30%, base.....	55
Carbon, 0.30% to 0.40%, base.....	50

Plus differentials for lengths over 18 ft. and for commercial exact lengths. Warehouse discounts on small lots are less than the above.

since the recent announcement of wide strip makers of an observance of 1.80c., base, on the plate mill sizes of wide strips. Structural lettings have not yet reached proportions that mean heavy drafts upon the mills for plain material. Reinforcing bars are held for higher prices and only regular mill distributors now are able to get supplies at less than 1.90c., base.

**Old Material.**—The market still shows a tendency to soften, as there is no consumer interest and the only demand is from dealers who have short orders to cover. They are not being pressed for shipment and have cut their bids. The steel mills, with greater operations than a month or so ago, are producing more scrap and a good deal of compressed and bundled sheet scrap is being offered. For heavy melting steel, mills are not allowing more than \$15 on overshipments and few dealers will go higher to cover short sales. The leading consumer of machine shop turnings in this district is offering only \$10, but there is no evidence that sales have been made at less than \$11. Heavy breakable cast scrap, which sold recently at \$14, delivered Wheeling, cannot be sold at more than \$13.75 now and one user still offers only \$13. Dealers short of heavy axle turnings are offering up to \$14, but that is more than consumers will pay.

*Prices per gross ton delivered consumers' yards in Pittsburgh and points taking the Pittsburgh district freight rate:*

**Basic Open-Hearth Furnace Grades:**

Heavy melting steel.....	\$15.00 to \$15.25
Scrap rails .....	14.50 to 14.75
Compressed sheet steel.....	14.00 to 14.25
Bundled sheets, sides and ends...	13.00 to 13.25
Cast iron carwheels.....	14.00 to 14.50
Sheet bar crops, ordinary.....	15.00 to 15.50
Heavy breakable cast.....	13.00 to 13.75
No. 2 railroad wrought.....	15.00 to 15.50
Heavy steel axle turnings.....	13.00 to 13.50
Machine shop turnings.....	11.00

**Acid Open-Hearth Furnace Grades:**

Railroad knuckles and couplers..	17.00 to 17.25
Railroad coil and leaf springs...	17.00 to 17.25
Roller steel wheels.....	17.00 to 17.25
Low phosphorus billet and bloom ends .....	18.50 to 19.00
Low phosphorus, mill plate.....	17.50 to 18.00
Low phosphorus, light grade.....	16.50 to 17.00
Low phosphorus sheet bar crops...	17.50 to 18.00
Heavy steel axle turnings.....	13.00 to 13.50

**Electric Furnace Grades:**

Low phosphorus punchings.....	16.50 to 17.00
Heavy steel axle turnings.....	13.00 to 13.50

**Blast Furnace Grades:**

Short shoveling steel turnings...	11.50 to 12.00
Short mixed borings and turnings	11.50 to 12.00
Cast iron borings.....	11.50 to 12.00
No. 2 busheling.....	10.00 to 10.50

**Rolling Mill Grades:**

Steel car axles.....	18.00 to 19.00
No. 1 railroad wrought.....	11.00 to 11.50
Sheet bar crops.....	17.00 to 17.50

**Cupola Grades:**

No. 1 cast.....	14.50 to 15.00
Rails 3 ft. and under.....	15.00 to 15.25

**Malleable Grades:**

Railroad .....	15.00 to 15.25
Industrial .....	14.50 to 14.75
Agricultural .....	14.00 to 14.25

**Warehouse Prices, f.o.b. Pittsburgh**

	Base per Lb.
Plates .....	3.00c.
Structural shapes .....	3.00c.
Soft steel bars and small shapes.....	2.90c.
Reinforcing steel bars.....	2.75c.
Cold-finished and screw stock—	
Rounds and hexagons.....	3.60c.
Squares and flats.....	4.10c.
Bands .....	3.60c.
Hoops .....	4.00c. to 4.50c.
Black sheets (No. 24 gage), 25 or more bundles .....	3.65c.
Galvanized sheets (No. 24 gage), 25 or more bundles .....	4.50c.
Blue annealed sheets (No. 10 gage), 25 or more sheets .....	3.10c.
Galvanized corrugated sheets (No. 28 gage), per square.....	\$4.39
Spikes, large .....	3.30c. to 3.40c.
Small .....	3.80c. to 5.25c.
Boat .....	3.80c.
Track bolts, all sizes, per 100 count,	
62½ per cent off list	
Machine bolts, per 100 count, 62½ per cent off list	
Carriage bolts, per 100 count, 62½ per cent off list	
Nuts, all styles, per 100 count,	
62½ per cent off list	
Large rivets, base per 100 lb.....	\$3.50
Wire, black soft annealed, base per 100 lb. ....	\$3.00 to 3.10
Wire, galvanized soft, base per 100 lb. ....	3.00 to 3.10
Common wire nails, per keg.....	3.00
Cement coated nails, per keg.....	3.05

**Hot-Rolled Flats.**—Specifications from the automotive industry are extremely heavy. Good as was the start of last year, this year is better, and it is not uncommon to find makers whose order books this month are double those of December. Most mills now are on a basis of 2.10c., base, for strips narrower than 6 in., and 1.90c., base, for 6 in. to 12 in. For very narrow stock the range is from 2.10c. to 2.30c.

**Cold-Rolled Strips.**—Mills are well committed against probable production for this quarter and are getting such heavy specifications that in some cases deliveries are not made as promptly as was the case recently. An announcement of a minimum price of 3.15c., base, or 2.90c. on three tons or more, is a sign of dissatisfaction with present prices.

**Coke and Coal.**—So much of the demand for coal is in run of mine grade that the supply of slack coal is pretty scant and producers are able to sell it at better prices than have lately prevailed. But the coal market as a whole shows no improvement either in prices or demand and it is frequently necessary for companies that are keeping mines in operation to sell accumulations at sacrifice prices. The beehive oven coke market also is dull and depressed. Producers without regular consuming connections find it very difficult to dispose of their outputs except at lower prices than they would name against an inquiry.

## Spang, Chalfant & Co., Standard Seamless Tube Co., Oil Well Supply Co. Merge

PITTSBURGH, Jan. 16.—A merger that has long been rumored was consummated today when Spang, Chalfant & Co., Inc., one of the oldest manufacturers of welded pipe in the country, and the Standard Seamless Tube Co., one of the leading seamless pipe manufacturing companies, were consolidated under the name of Spang, Chalfant & Co. As part of the transaction the new company has acquired an interest in the Oil Well Supply Co. and obtains a voice in the management of a company maintaining 90 distributing branches in the oil producing districts in this country and abroad.

There were reports as long ago as the middle of last year that a merger of these two pipe companies was under negotiation, but verification was lacking. In view of the strong drift toward seamless pipe to replace welded pipe, it had been expected that Spang, Chalfant & Co. would eventually follow other welded pipe manufacturers in installing seamless pipe making capacity. The merger provides this capacity and incidentally obviates an addition to the total seamless pipe producing units, which in some quarters are believed to be numerous enough already.

Spang, Chalfant & Co., Inc., which this year observes the hundredth anniversary of its founding, operates the old Etna Iron & Tube Works, Etna, Pa., just outside the Pittsburgh city limits to the north, which was established in 1828. Besides four trains of 16-in. and 12-in. skelp mills, which have not been operated in recent years, the plant contains three butt welding and four lap welding furnaces, with an estimated annual capacity of 300,000 tons of sizes ranging from ½ in. to 24 in.

The Standard Seamless Tube Co. has a plant at Ambridge, Pa., containing two complete seamless pipe units, which are estimated to be capable of producing 300,000 tons of pipe from 1 in. to 14 in. in diameter annually. This company, which originally produced seamless steel boiler tubes, has in recent years specialized in oil country pipe.

## Sharon Steel Hoop Co. to Issue \$7,000,000 Bonds

The Sharon Steel Hoop Co., of which Severn P. Ker is president, is negotiating a bond issue of \$7,000,000 to refund existing obligations and provide working capital for extensions. Ground has been broken for a new cold rolled strip mill, while work has started on an enlargement of the company's pickling plants.



# Semi-Finished Steel, Raw Materials,\* Bolts and Rivets

## Mill Prices of Semi-Finished Steel

F.o.b Pittsburgh or Youngstown

Billets and Blooms	
	Per Gross Ton
Rerolling, 4-in. and over.....	\$33.00
Rerolling, under 4-in. to and in- cluding 1½ in.....	\$33.50 to 34.00
Forging, ordinary .....	38.00 to 39.00
Forging, guaranteed .....	43.00 to 44.00

Sheet Bars	
	Per Gross Ton
Open-hearth or Bessemer.....	\$34.00

Slabs	
	Per Gross Ton
8 in. x 2 in. and larger.....	\$33.00
Smaller than 8 in. x 2 in.....	34.00

Skelp	
	Per Lb.
Grooved .....	1.80c.
Sheared .....	1.80c.
Universal .....	1.80c.

Wire Rods	
	Per Gross Ton
*Common soft, base.....	\$42.00
Screw stock .....	\$5.00 per ton over base
Carbon 0.20% to 0.40%.....	3.00 per ton over base
Carbon 0.41% to 0.55%.....	5.00 per ton over base
Carbon 0.56% to 0.75%.....	7.50 per ton over base
Carbon over 0.75%.....	10.00 per ton over base
Acid .....	15.00 per ton over base

\*Chicago mill base is \$43. Cleveland mill base, \$42.

## Prices of Raw Material

Ores	
Lake Superior Ores, Delivered Lower Lake Ports	
	Per Gross Ton
Old range Bessemer, 51.50% iron.....	\$4.55
Old range non-Bessemer, 51.50% iron.....	4.40
Mesabi Bessemer, 51.50% iron.....	4.40
Mesabi non-Bessemer, 51.50% iron.....	4.25
High phosphorus, 51.50% iron.....	4.15
Foreign Ore, c.i.f. Philadelphia or Baltimore	
	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algeria.....	10.00c.
Iron ore, Swedish, average 66% iron.....	9.25c. to 9.50c.
Manganese ore, washed, 52% manganese, from the Caucasus.....	39c.
Manganese ore, Brazilian, African or Indian, basis 50% .....	38c. to 39c.
Tungsten ore, high grade, per unit, in 60% concentrates .....	\$10.25 to \$10.75
Per Gross Ton	
Chrome ore, 45 to 50% Cr <sub>2</sub> O <sub>3</sub> , crude, c.i.f. Atlantic seaboard .....	\$22.00 to \$24.00
Per Lb.	
Molybdenum ore, 85% concentrates of MoS <sub>2</sub> , delivered .....	50c. to 55c.

Coke	
	Per Net Ton
Furnace, f.o.b. Connellsville prompt .....	\$2.75
Foundry, f.o.b. Connellsville prompt .....	\$3.75 to 4.50
Foundry, by-product, Chgo ovens .....	9.00
Foundry, by-product, New England, del'd .....	11.50
Foundry, by-product, Newark or Jersey City, delivered.....	9.45 to 9.85
Foundry, Birmingham .....	5.00
Foundry, by-product, St. Louis.....	9.75

Coal	
	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines .....	\$1.40 to \$1.90
Mine run coking coal, f.o.b. W. Pa. mines .....	1.50 to 1.75
Mine run gas coal, f.o.b. Pa. mines .....	1.75 to 1.90
Steam slack, f.o.b. W. Pa. mines.....	1.15 to 1.25
Gas slack, f.o.b. W. Pa. mines.....	1.20 to 1.30

Ferromanganese	
	Per Gross Ton
Domestic, 80%, furnace or seab'd.....	\$100.00
Foreign, 80%, Atlantic or Gulf port, duty paid .....	100.00

Spiegeleisen	
	Per Gross Ton Furnace
Domestic, 19 to 21% .....	\$31.00 to \$32.00
Domestic, 16 to 19% .....	29.00

Electric Ferrosilicon	
	Per Gross Ton Delivered
50% .....	\$83.50
75% .....	135.00
Per Gross Ton Furnace	
10% .....	\$35.00
11% .....	37.00
12% .....	\$39.00
14 to 16%.....	45.00

Bessemer Ferrosilicon	
F.o.b. Jackson County, Ohio, Furnace	
	Per Gross Ton
10% .....	\$30.00
11% .....	32.00
	Per Gross Ton
10% .....	\$34.00
12% .....	\$34.00

Silvery Iron	
F.o.b. Jackson County, Ohio, Furnace	
	Per Gross Ton
6% .....	\$23.00
7% .....	24.00
8% .....	25.00
9% .....	26.00
	Per Gross Ton
10% .....	\$28.00
11% .....	30.00
12% .....	32.00

Other Ferroalloys	
Ferrotungsten, per lb. contained metal, del'd .....	92c. to 95c.
Ferrochromium, 4 to 6% carbon and up, 65 to 70% Cr., per lb. contained Cr. delivered, in carloads.....	11.00c.
Ferrovandium, per lb. contained vanadium, f.o.b. furnace .....	\$3.15 to \$3.65
Ferrocobaltititanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads.....	\$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per net ton.....	\$91.00
Ferrophosphorus, electric, 24%, f.o.b. Anniston, Ala., per net ton.....	\$122.50

Fluxes and Refractories	
Fluorspar	
	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines.....	\$14.50 to \$15.00
No. 2 lump, Illinois and Kentucky mines.....	\$20.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid.....	\$16.00
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines.....	\$32.50

Fire Clay	
Per 1000 f.o.b. Works	
	First Quality
Pennsylvania .....	\$43.00 to \$46.00
Maryland .....	43.00 to 46.00
New Jersey .....	50.00 to 65.00
Ohio .....	43.00 to 46.00
Kentucky .....	43.00 to 46.00
Missouri .....	43.00 to 46.00
Illinois .....	43.00 to 46.00
Ground fire clay, per ton .....	7.00

Silica Brick	
Per 1000 f.o.b. Works	
Pennsylvania .....	\$43.00
Chicago .....	52.00
Birmingham .....	50.00
Silica clay, per ton.....	\$8.50 to 10.00

Magnesite Brick	
Per Net Ton	
Standard sizes, f.o.b. Baltimore and Chester, Pa. ....	\$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa. ....	40.00

Chrome Brick	
Per Net Ton	
Standard size .....	\$45.00

## Mill Prices of Bolts, Nuts, Rivets and Set Screws

Bolts and Nuts	
Per 100 Pieces	
(F.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)	
	Per Cent Off List
Machine bolts .....	70
Carriage bolts .....	70
Lag bolts .....	70
Flow bolts, Nos. 1, 2, 3 and 7 heads.....	70
Hot-pressed nuts, blank or tapped, square.....	70
Hot-pressed nuts, blank or tapped, hexagon.....	70
C.p.c. and t. square or hex. nuts, blank or tapped .....	70
Washers* .....	6.75c. to 6.50c. per lb. off list

\*F.o.b. Chicago, New York and Pittsburgh.  
†Bolts with rolled threads up to and including ½ in. x 6 in. take 10 per cent lower list prices.

Bolts and Nuts	
Per Cent Off List	
Semi-finished hexagon nuts.....	70
Semi-finished hexagon castellated nuts, S.A.E.....	70
Stove bolts in packages.....	80, 10 and 5
Stove bolts in bulk.....	80, 10, 5 and 2½
Tire bolts .....	60, 5 and 5

Discount of 70 per cent off on bolts and nuts applied on carload business. For less than carload orders discounts of 55 to 60 per cent apply.

Large Rivets	
(½-In. and Larger)	
	Base per 100 Lb.
F.o.b. Pittsburgh or Cleveland.....	\$2.75
F.o.b. Chicago .....	2.85

Small Rivets	
(¾-In. and Smaller)	
	Per Cent Off List
F.o.b. Pittsburgh .....	70, 10 and 5
F.o.b. Cleveland .....	70, 10 and 5 to 70 and 10
F.o.b. Chicago .....	70, 10, 10 and 5 to 70 and 10

Cap and Set Screws	
(Freight allowed up to but not exceeding 50c. per 100 lb. on lots of 200 lb. or more)	
	Per Cent Off List
Milled cap screws.....	80, 10 and 10
Milled standard set screws, case hardened.....	80 and 10
Milled headless set screws, cut thread.....	85 and 5
Upset hex. head cap screws, U.S.S. thread.....	85 and 5
Upset hex. cap screws, S.A.E. thread.....	80, 10 and 10
Upset set screws.....	80, 10 and 10
Milled studs .....	70 and 5

# Chicago

## Ingot Rate at 80 Per Cent—Steel Orders Show Increase

CHICAGO, Jan. 17.—The Steel Corporation has blown in two blast furnaces, one at Gary and one at South Works. These bring the number of stacks lighted since the first of the year to five and make the total count of active steel mill furnaces 26 out of 36. Further evidence of improvement in this market is given by the fact that ingot output has reached 80 per cent of capacity. Producers point to fresh sales that are 40 per cent above the average week in 1927 and new specifications that are 66 per cent heavier as indications that the rate of ingot production will be well maintained if not bettered in the immediate future.

Soft steel bar output at 85 per cent of capacity leads other heavy tonnage finished steel products, though structural material does not lag far behind. Unusual activity in building projects, noted a week ago, is undiminished. Notable among new developments is the announcement that a 42-story home will be erected for the Chicago Civic Opera. Rail purchases totaled over 25,000 tons, of which 15,000 tons was ordered by the Pere Marquette. The Rock Island will buy 50,000 tons. Fresh car inquiry includes 2000 refrigerator cars, 500 automobile and 500 hopper car bodies. The budget of the Chicago, Rock Island & Pacific provides \$6,500,000 for new equipment and the number of cars that may be purchased by the Illinois Central is now placed at 4000.

**Pig Iron.**—First quarter buying in December and the first half of January has exceeded 300,000 tons. This movement is well sustained and interest in second quarter requirements is on the increase. Of special interest is the greater activity both in contracting by and in shipments to the malleable foundries. The Mayville furnace, well supplied with a large stock of iron on the ground, was blown out Tuesday, leaving two Federal, two Iroquois and the Zenith furnace the only active merchant stacks in this district. Scattered sales of charcoal iron are being made at \$24, furnaces, and less is heard of cuts in prices for purposes of liquidating stocks. Foundry iron prices are strong at \$18.50, f.o.b. local furnace. Producers have oversold output at present rate, but furnace stocks are large and so will forestall blowing in additional stacks in the immediate future.

<i>Prices per gross ton at Chicago:</i>	
Northern No. 2 foundry, sil. 1.75 to 2.25	\$18.50
N'th'n No. 1 fdy., sil. 2.25 to 2.75	19.00
Malleable, not over 2.25 sil.	18.50
High phosphorus	18.50
Lake Superior charcoal, averaging sil. 1.50	27.04
Southern No. 2 fdy. (all rail)	22.01
Southern No. 2 (barge and rail)	20.18
Low phos., sil. 1 to 2 per cent, copper free	\$28.50 to 29.00
Silvery, sil. 8 per cent	29.79
Bessemer ferrosilicon, 14 to 15 per cent	46.79

Prices are delivered consumers' yards except on Northern foundry, high phosphorus and malleable which are f.o.b. local furnace, not including an average switching charge of 61c. per gross ton.

**Ferroalloys.**—Buying of these commodities is quiet and prices are steady. Specifications are of good size and in some instances shipping schedules have been exceeded.

*Prices delivered Chicago:* 80 per cent ferromanganese, \$107.56; 50 per cent ferrosilicon, \$83.50 to \$87.50; spiegeleisen, 19 to 21 per cent, \$88.76 to \$39.76.

**Plates.**—Specifications for steel from car builders are now beginning to take a prominent place in this market. In the week 15,000 tons have been scheduled for rolling and inquiries as to deliveries indicate that heavier requirements will be needed at an early date. The railroad equipment market from the viewpoint of large inquiries and purchases is dull, current business being confined to miscellaneous small lots from widely scattered sources. About 2000 tons of plates will be required for a high line syphon at Takoma, Wash., and definite inquiry has come from Louisiana for 2000 tons of oil tankage plates. An oil producer in western

Texas has closed for 3000 tons of plates for tank construction, and several new projects are in the making in that territory. The last two weeks have brought about a material improvement in the position of local plate mills. Miscellaneous demand is holding steady and at the same time orders from fabricators and car builders have piled up so that deliveries in certain sizes of sheared plates are now from two to three weeks and some universal mill products cannot be had in that time. Plate mills are engaged at close to 70 per cent of capacity.

*Mill prices on plates per lb.: 1.90c., base, Chicago.*

**Structural Material.**—This week is outstanding in structural awards. In Chicago close to 13,000 tons was placed, including 4500 tons for the first four floors of the Woolworth Building, 3200 tons for an apartment building, 3000 tons for an office building and 1700 tons for a lift bridge. Unusual activity prevails among architects and engineers, who, in an effort to rush the placing of steel contracts, are submitting line drawings for estimates. Although prices for fabricated steel were no higher on recent lettings, there is a wider spread between the high and low bids, with average figures measurably higher than at the turn of the year. Highway bridge work gives further promise in two new inquiries calling for a total of 2700 tons.

*Mill prices on plain material per lb.: 1.90c., base, Chicago.*

**Reinforcing Bars.**—Awards are more numerous with rail steel bar producers taking the bulk of going business at prices that range 1.80c. to 1.85c., Chicago Heights mills. Henry Ericsson, a local contractor, will build the Campbell Soup Co.'s Chicago plant, for which 3000 tons of bars will be required. A sale of 400 tons of billet steel bars gives further proof that prices for round tonnages are not being held at the level which the trade had hoped to maintain. Warehouse quotations range from 2.25c. to 2.75c. New projects are numerous and estimators are well engaged. Warehouse shipments average 55 per cent of capacity. New awards and recent projects are shown on page 243.

**Bolts, Nuts and Rivets.**—Specifications for these commodities are heavier because of the larger requirements by railroads and the automotive industry.

**Rails and Track Supplies.**—Two railroads with terminals in Chicago have purchased 10,000 tons of standard-section rails. Fresh inquiry has come out in the last few days and the total now before Western mills is not less than 75,000 tons. Rail mill output is a shade over 80 per cent of capacity. Scattered orders for track fastenings total 10,000 tons. Inquiry is brisk and more than offsets current shipments. Tie plate production has been stepped up to 75 per cent of capacity and angle bar output is at 60 per cent. Taking the Middle West as a whole, orders for light rails are small, but in the week a sharp demand has come from the southern Illinois coal mining district. A few scattered sales of iron tie plates have been made, but inquiry is dull and does not indicate an active market in the immediate future.

*Prices f.o.b. mill, per gross ton:* Standard-section open-hearth and Bessemer rails, \$43; light rails, rolled from billets, \$36. *Per Lb.:* Standard railroad spikes, 2.80c.; track bolts with square nuts, 3.80c.; steel tie plates, 2.25c.; angle bars, 2.75c.

**Wire Products.**—Specifications from the jobbing trade are smaller as distributors find that a further expansion of stocks is not warranted at this time. New orders are split about even between those for immediate delivery and shipments for the future. Business is recovering in the flood areas of the Mississippi River Valley, notably in and around Memphis, Tenn. Distribution of wire products is in fair volume in the Southwest, where the spring demand will soon be felt, and in the Middle West, with the exception of portions of the Missouri River Valley. Orders from the far Northwest are numerous, considering the time of the year, but business is dull in the territory surrounding Minneapolis. Any lessening in the rate of shipments to jobbers is offset by the increased requirements of the manufacturing trade. As a general rule, prices are steady at 2.45c., Chicago, for plain wire and 2.60c. for nails, but cutting in the latter commodity has not been



wholly eliminated from the nearby market, and at St. Louis concessions in prices have been made in a few instances on wire.

**Bars.**—Automobile producers and accessory manufacturers have taken their full quotas for the first half of January and they are now arranging shipping schedules for February. Indications are that requirements in February will well overbalance those of January. The demand for mild steel bars is such that local mill capacity is engaged at 85 per cent of capacity, about four points above the current rate of ingot output. Prices are firmly established at 1.90c., Chicago. Sales of iron bars are of fair size at 1.90c., Chicago. Specifications, however, are light. Alloy steel bar specifications are the heaviest in many weeks and local mills are operating at 75 to 80 per cent of rated output. Prices are steady. The rail steel bar market is quiet. Sales are confined to small lots and specifications are light. Both Chicago Heights mills continue to operate on a double turn basis, but at reduced hours per shift. Prices, except for hard steel bars used for concrete reinforcement, are stronger. Average orders are being taken at 1.80c., Chicago Heights mills, and smaller lots command 1.85c.

*Mill prices per lb.: Soft steel bars, 1.90c., base, Chicago; common bar iron, 1.90c., base, Chicago; rail steel bars, 1.80c., base, Chicago Heights mill.*

**Sheets.**—The size of order books has little bearing on the immediate requirements of users and local producers are having trouble in scheduling hot mills. Output is close to 75 per cent of capacity and this rate is difficult to maintain in view of the character of specifications received from day to day. Producers look for some relief when weather favorable to outdoor construction prevails in the near South and in the Southwest.

*Base prices per lb., delivered from mill in Chicago: No. 24 black, 3.05c.; No. 24 galvanized, 3.90c.; No. 10 blue annealed, 2.25c. to 2.35c. Delivered prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than the Chicago delivered prices.*

**Coke.**—By-product foundry coke is in greater demand and prices are steady. Core oven heating coke is in fair demand but prices are weak, common quotations ranging from \$7 to \$7.50, delivered.

**Cast Iron Pipe.**—The trend in cast iron pipe prices is downward, as shown by recent quotations at Milwaukee and at Jackson, Mich. The National Cast Iron Pipe Co. was low bidder on 5000 tons of 6-in. to 16-in. pipe for Milwaukee at \$25.85, Birmingham, or \$34.35, delivered. At Jackson 110 tons of 6-in. class B pipe brought out a low bid of \$26.70, Birmingham, or \$34.65, delivered. It is said that Minneapolis will soon come into the market for a round tonnage, and Osseo, Wis., will close bids Jan. 27 on 12,000 ft. of 6-in. and 1000 ft. of 8-in. pipe. The American Cast Iron Pipe Co. is low bidder on the total tonnage asked by Portsmouth, Ohio, but it is reported that figures were taken three ways and that the award may be split. Two con-

tractors near Chicago have placed large orders for immediate delivery, but for use in the spring. This market is moderately active in small tonnages, but this support comes principally from public utilities. Pipe foundries report that deliveries are extending and that the average is about three weeks for a spread of sizes.

*Prices per net ton, delivered Chicago: Water pipe, 6-in. and over, \$34.20 to \$36.20; 4-in., \$38.20 to \$40.20; Class A and gas pipe, \$4 extra.*

**Old Material.**—Sales of heavy melting steel aggregating 35,000 tons to three local mills have brought to an end, at least temporarily, the upward trend in prices in the Chicago scrap market. Prices in these transactions ranged from \$13 to \$13.25. Dealers, in an effort to cover, immediately cut offered prices to \$12.50 to \$12.75, and they have had little difficulty in getting the tonnages required. A weak spot also developed in another direction, namely, in cast iron borings. Closing down of the last Mayville stack has cut off that channel and is diverting a flow of borings from Milwaukee to Chicago. Producers of this grade suddenly reached the conclusion that this is the time to unload. These factors, combined with others, suddenly converted the local market from one in which there existed a scarcity of borings to one of which there is a surplus.

*Prices delivered consumers' yards, Chicago:*

Per Gross Ton	
<b>Basic Open-Hearth Grades:</b>	
Heavy melting steel.....	\$12.50 to \$13.00
Shovelling steel.....	12.50 to 13.00
Frogs, switches and guards, cut apart, and miscellaneous rails.....	14.25 to 14.75
Hydraulic compressed sheets.....	10.75 to 11.25
Drop forge flashings.....	9.75 to 10.25
Forged, cast and rolled steel car wheels.....	15.50 to 16.00
Railroad tires, charging box size.....	16.25 to 16.75
Railroad leaf springs, cut apart.....	16.25 to 16.75
<b>Acid Open-Hearth Grades:</b>	
Steel couplers and knuckles.....	15.00 to 15.50
Coil springs.....	16.50 to 17.00
<b>Electric Furnace Grades:</b>	
Axle turnings.....	12.50 to 13.00
Low phosphorus punchings.....	14.25 to 14.75
Low phosphorus plate, 12 in. and under.....	13.50 to 14.00
<b>Blast Furnace Grades:</b>	
Axle turnings.....	10.75 to 11.25
Cast iron borings.....	10.50 to 11.00
Short shovelling turnings.....	10.50 to 11.00
Machine shop turnings.....	7.75 to 8.25
<b>Rolling Mill Grades:</b>	
Iron rails.....	13.50 to 14.00
Rerolling rails.....	15.00 to 15.50
<b>Cupola Grades:</b>	
Steel rails less than 3 ft.....	15.25 to 15.75
Angle bars, steel.....	14.50 to 15.00
Cast iron car wheels.....	14.00 to 14.50
<b>Malleable Grades:</b>	
Railroad.....	13.75 to 14.25
Agricultural.....	12.50 to 13.00
<b>Miscellaneous:</b>	
*Relaying rails, 56 to 60 lb.....	23.00 to 25.00
*Relaying rails, 65 lb. and heavier.....	26.00 to 31.00

Per Net Ton	
<b>Rolling Mill Grades:</b>	
Iron angle and splice bars.....	14.00 to 14.50
Iron arch bars and transoms.....	18.75 to 19.25
Iron car axles.....	21.50 to 22.00
Steel car axles.....	16.00 to 16.50
No. 1 railroad wrought.....	11.00 to 11.50
No. 2 railroad wrought.....	11.00 to 11.50
No. 1 busheling.....	9.50 to 10.00
No. 2 busheling.....	4.50 to 5.00
Locomotive tires, smooth.....	12.50 to 13.00
Pipes and flues.....	8.00 to 8.50
<b>Cupola Grades:</b>	
No. 1 machinery cast.....	14.50 to 15.00
No. 1 railroad cast.....	13.50 to 14.00
No. 1 agricultural cast.....	13.50 to 14.00
Stove plate.....	12.00 to 12.50
Grate bars.....	11.50 to 12.00
Brake shoes.....	11.75 to 12.25

\*Relaying rails, including angle bars to match, are quoted f.o.b. dealers' yards.

#### Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes.....	3.10c.
Soft steel bars.....	3.00c.
Reinforcing bars, billet steel.....	2.25c. to 2.75c.
<b>Cold-finished steel bars and shafting—</b>	
Rounds and hexagons.....	3.60c.
Flats and squares.....	4.10c.
Bands.....	3.65c.
Hoops.....	4.15c.
Black sheets (No. 24).....	3.95c.
Galvanized sheets (No. 24).....	4.80c.
Blue annealed sheets (No. 10).....	3.50c.
Spikes, standard railroad.....	3.55c.
Track bolts.....	4.55c.
Rivets, structural.....	3.60c.
Rivets, boiler.....	3.60c.
Per Cent Off List	
Machine bolts.....	60
Carriage bolts.....	60
Coach or lag screws.....	60
Hot-pressed nuts, squares, tapped or blank.....	60
Hot-pressed nuts, hexagons, tapped or blank.....	60
No. 8 black annealed wire, per 100 lb.....	\$3.20
Common wire nails, base per keg.....	\$2.90 to 3.00
Cement coated nails, base per keg.....	2.90 to 3.00

#### Acquires Hamilton Bridge Works

The Hamilton Bridge Works, Ltd., Hamilton, Ont., has been acquired by James Playfair, president of the Canadian Vickers Co., and his associates, F. M. Ross and Drury & Co., according to an announcement by Ian Hendrie, vice-president of the Hamilton company. He stated that the change of control would not likely result in disruption of the present staff, and that the project would probably be financed by a public bond issue. The company was founded in 1874 and reorganized in 1925.

# New York

## Pig Iron Sales About 10,000 Tons— Steel Trade Quiet

NEW YORK, Jan. 17.—Sales of pig iron by local brokers during the week totaled nearly 10,000 tons, as compared with only 3500 tons in the previous week. While melters are still cautious, limiting their purchases to relatively small tonnages, they are commencing to see more business ahead and are taking a proportionately keener interest in the iron market. Some foundries that bought only recently are adding to their purchases, and others, which have been out of the market for from four to six months, are again issuing inquiries. Demand is principally for shipment during the current quarter, although a few inquiries for next quarter have appeared. The New York Air Brake Co., for example, is in the market for 1000 tons of malleable for second quarter delivery at Watertown, N. Y., and a Montreal company with American affiliations is asking for prices on 1000 tons of iron for shipment by boat after the reopening of navigation. The Thatcher Co. has bought against an inquiry for 500 tons of foundry for delivery at Garwood, N. J. The Delaware, Lackawana & Western Railroad is in the market for 100 tons of No. 2 plain for shipment to Scranton, Pa., and the Baltimore & Ohio Railroad wants a similar tonnage for Baltimore delivery. The Worthington Pump & Machinery Corporation has finally closed against its inquiry for 400 tons for Holyoke, Mass., but is still in the market for 90 tons of Bessemer iron for shipment to Harrison, N. J. Foreign low phosphorus is stronger, now being quoted at \$24, duty paid, port of entry. Eastern Pennsylvania foundry iron has been sold within the week at \$19, base furnace, although producers are making a stronger effort to maintain a minimum price of \$19.50. Buffalo foundry iron still ranges from \$16.50 to \$17, base furnace.

Prices per gross ton, delivered New York district:

Buffalo No. 2 fdy., sil. 1.75 to 2.25	\$21.41 to \$21.91
East. Pa. No. 2 fdy., sil. 1.75 to 2.25	20.39 to 21.52
East. Pa. No. 2 fdy., sil. 2.25 to 2.75	20.89 to 22.02
East. Pa. No. 1X fdy., sil. 2.75 to 3.25	21.39 to 22.52

Freight rates: \$4.91 from Buffalo, \$1.39 to \$2.52 from eastern Pennsylvania.

**Ferrolloys.**—There has been practically no inquiry thus far this year for ferromanganese, quotations for which are firm at \$100 for seaboard or furnace. There has been a little business done in spiegeleisen and there are a few inquiries before the market. Prices are firm at \$31 to \$32 for the 19 to 21 per cent alloy.

**Cast Iron Pipe.**—Prices have developed a slight weakness. A Southern producer of gas and water pipe is reported to have quoted under \$28 per ton, base Birmingham, but most makers are maintaining \$28, base, as a minimum. There is some private purchasing of water pipe, but mostly in small lots.

Prices per net ton, delivered New York: Water pipe 6-in. and larger, \$37.25 to \$38.25; 4-in. and 5-in., \$42.25 to \$43.25; 3-in., \$52.25 to \$53.25; Class A and gas pipe, \$4 to \$5 extra.

**Reinforcing Bars.**—The advance of the mill price on reinforcing bars, to 1.90c., Pittsburgh, announced by distributors in this territory several days ago, was responsible for the placing in the last week of 2000 tons for subway work. Igoe Brothers, Concrete Steel Co. and McClintic-Marshall Co. shared in this award. Covering for these jobs is said to be the last which will be allowed at the old price, and new work is being quoted at a basis of 1.90c., Pittsburgh. There has been no change in the New York or Youngstown warehouse prices.

**Warehouse Business.**—There has been a slight decline in purchasing. Black and galvanized sheets continue to sell at slight concessions in New York, but in New Jersey the base prices of 4.20c. per lb. for black and 4.95c. per lb. for galvanized are fairly well main-

tained. Occasionally blue annealed sheets are shaded 5c. to 10c. per 100 lb.

**Coke.**—Prices are unchanged at about \$4 per net ton, Connellsville, for standard foundry and at \$2.75 to \$3 per ton, Connellsville, for standard furnace grade. Purchasing is light. Delivered prices on Connellsville foundry coke are: To northern New Jersey, \$8.03; to New York or Brooklyn, \$8.79; to Newark or Jersey City, \$7.91. By-product foundry coke is quoted at \$9 to \$9.40 per net ton, delivered Newark or Jersey City.

**Finished Steel.**—Not much new business has been placed during the week, but specifications against contracts continue to come to district sales offices at a fairly good rate and consumers are taking shipments

## Warehouse Prices, f.o.b. New York

	Base per Lb.
Plates and structural shapes.....	3.34c.
Soft steel bars and small shapes.....	3.24c.
Iron bars.....	3.24c.
Iron bars, Swedish charcoal.....	7.00c. to 7.25c.
Cold-finished shafting and screw stock—	
Rounds and hexagons.....	3.30c.
Flats and squares.....	3.80c.
Cold-rolled strip, soft and quarter hard,	
6.00c. to 6.25c.	
Hoops.....	4.49c.
Bands.....	3.99c.
Blue annealed sheets (No. 10 gage),	
3.84c. to 3.89c.	
Long terme sheets (No. 24 gage).....	5.80c.
Standard tool steel.....	12.00c.
Wire, black annealed.....	4.50c.
Wire, galvanized annealed.....	5.15c.
Tire steel, 1½ x ½ in. and larger.....	3.30c.
Smooth finish, 1 to 2½ x ¼ in. and	
larger.....	3.65c.
Open-hearth spring steel, bases.....	4.50c. to 7.00c.
Machine bolts, cut thread: Per Cent Off List	
¾ x 6 in. and smaller.....	55 to 60
1 x 30 in. and smaller.....	50 to 50 and 10
Carriage bolts, cut thread:	
¾ x 6 in. and smaller.....	55 to 60
¾ x 20 in. and smaller.....	50 to 50 and 10
Coach screws:	
¾ x 6 in. and smaller.....	55 to 60
1 x 16 in. and smaller.....	50 to 50 and 10
Boiler Tubes— Per 100 Ft.	
Lap welded steel, 2-in.....	\$17.33
Seamless steel, 2-in.....	20.24
Charcoal iron, 2-in.....	25.00
Charcoal iron, 4-in.....	67.00

## Discounts on Welded Pipe

Standard Steel—	Black	Galv.
½-in. butt.....	46	29
¾-in. butt.....	51	37
1-3-in. butt.....	53	39
2½-6-in. lap.....	48	35
7 and 8-in. lap.....	44	17
11 and 12-in. lap.....	37	12
Wrought Iron—		
½-in. butt.....	5	+19
¾-in. butt.....	11	+9
1-1½-in. butt.....	14	+6
2-in. lap.....	5	+14
3-6-in. lap.....	11	+6
7-12-in. lap.....	3	+16

## Tin Plate (14 x 20 in.)

	Prime	Seconds
Coke, 100 lb. base box.....	\$6.10	\$5.85
Charcoal, per box—	A	AAA
IC.....	\$9.70	\$12.10
IX.....	12.00	14.25
IXX.....	13.90	16.00

## Terne Plate (14 x 20 in.)

IC—20-lb. coating.....	\$10.00 to \$11.00
IC—30-lb. coating.....	12.00 to 13.00
IC—40-lb. coating.....	13.75 to 14.25

## Sheets, Box Annealed—Black, C. R. One Pass

	Per Lb.
Nos. 18 to 20.....	3.90c. to 4.00c.
No. 22.....	4.05c. to 4.15c.
No. 24.....	4.10c. to 4.20c.
No. 26.....	4.20c. to 4.30c.
No. 28*	4.35c. to 4.45c.
No. 30.....	4.60c. to 4.70c.

## Sheets, Galvanized

	Per Lb.
No. 14.....	4.35c.
No. 16.....	4.45c.
No. 18.....	4.50c. to 4.60c.
No. 20.....	4.65c. to 4.75c.
No. 22.....	4.70c. to 4.80c.
No. 24.....	4.85c. to 4.95c.
No. 26.....	5.10c. to 5.20c.
No. 28*	5.35c. to 5.45c.
No. 30.....	5.75c. to 5.85c.

\*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.



against commitments in a way that indicates a generally higher level of manufacturing operations than prevailed in December. Mill operations in the East on plates and shapes have improved noticeably this month, and in structural steel there are sufficient projects under consideration to produce a hopeful feeling that a continuing improvement will develop. Among new structural projects is 5000 tons for the Lefcourt Building at Fifth Avenue and Forty-third Street, while the largest award locally is 2900 tons for subway work. December awards of fabricated steel, not including subways, bridges and similar general construction work, as reported to the Structural Steel Board of Trade of New York, totaled 36,900 tons for the metropolitan area, compared with 37,000 tons in November, 1927, and 34,000 tons in December, 1926. The total for 1927 in the New York district was 512,431 tons, compared with 374,476 tons in 1926, a gain of more than 37 per cent. Prices on plates, shapes and bars are unchanged, while sheet quotations are working toward 2.90c. on black and 3.75c. on galvanized, although these prices have not yet obtained on all transactions. Blue annealed sheets are firm at 2.10c. for widths under 40 in.

Cold rolled strip steel manufacturers have announced an advance in price of \$3 a ton, effective Jan. 25, making the new quotations 2.90c. per lb., Pittsburgh or Cleveland, for lots of three tons or more and 3.15c. for less than three tons. The Worcester, Mass., mill will quote, as usual, 15c. per 100 lb. above these prices at mill.

*Mill prices per lb., delivered New York: Soft steel bars, 2.14c.; plates, 2.12½c.; structural shapes, 2.09½c.; bar iron, 2.14c.*

**Old Material.**—Prices on all grades of scrap are firm, but show no tendency to advance. The market is quiet. No. 1 heavy melting steel is unchanged at \$13.50 per ton, delivered to Bethlehem, Coatesville, Conshohocken, Pa., or Claymont, Del. Yard grade is being purchased by brokers at \$11 per ton, delivered Harrisburg, Pottsville or Phoenixville, Pa.

*Dealers' buying prices per gross ton, New York:*

No. 1 heavy melting steel.....	\$10.00 to \$10.85
Heavy melting steel (yard).....	6.75 to 7.25
No. 1 heavy breakable cast.....	11.25 to 12.00
Stove plate (steel works).....	8.75 to 9.00
Locomotive grate bars.....	8.25 to 8.50
Machine shop turnings.....	6.50 to 7.50
Short shoveling turnings.....	6.50 to 7.50
Cast borings (blast furnace or steel works).....	6.75 to 7.25
Mixed borings and turnings.....	6.50 to 7.50
Steel car axles.....	17.00 to 17.50
Iron car axles.....	23.75 to 24.75
Iron and steel pipe (1 in. diam., not under 2 ft. long).....	8.75 to 9.25
Forge fire.....	6.50 to 7.00
No. 1 railroad wrought.....	10.50 to 11.00
No. 1 yard wrought, long.....	9.00 to 9.50
Rails for rolling.....	10.50 to 11.00
Cast iron carwheels.....	11.25 to 11.75
Stove plate (foundry).....	8.75 to 9.00
Malleable cast (railroad).....	10.00 to 10.50
Cast borings (chemical).....	11.00 to 12.00

*Prices per gross ton, delivered local foundries:*

No. 1 machinery cast.....	\$13.50 to \$14.00
No. 1 heavy cast (columns, building materials, etc.), cupola size	11.50 to 12.00
No. 2 cast (radiators, cast boilers, etc.).....	11.00 to 11.50

**Warehouse Prices, f.o.b. Cleveland**

	Base per Lb.
Plates and structural shapes.....	3.00c.
Soft steel bars.....	3.00c.
Reinforcing steel bars.....	2.25c. to 2.75c.
Cold-finished rounds and hexagons.....	3.65c.
Cold-finished flats and squares.....	4.15c.
Hoops and bands.....	3.65c.
Cold-finished strip.....	*5.95c.
Black sheets (No. 24).....	3.75c.
Galvanized sheets (No. 24).....	4.40c. to 4.50c.
Blue annealed sheets (No. 10).....	3.25c.
No. 9 annealed wire, per 100 lb.....	\$2.90
No. 9 galvanized wire, per 100 lb.....	3.35
Common wire nails, base per keg.....	2.90

\*Net base, including boxing and cutting to length.

## Cleveland

### New Steel Business Exceeds Expectations—Pig Iron Active

CLEVELAND, Jan. 17.—Consumers are placing a fair amount of small-lot orders for steel bars, plates and structural material at 1.80c., Pittsburgh. Some of this business is coming from buyers who will need more steel than they covered for in their December specifications and some from consumers who, following their hand-to-mouth buying policy, did not take advantage of the lower prices prevailing last month.

The volume of new business exceeds expectations in view of the fact that many buyers have enough material coming in against December specifications to last them for several weeks. The 1.80c., Pittsburgh, price quoted by outside mills appears to be holding firmly, although it has not yet been tested by round lot sales to fabricators and other large consumers. Local mills continue to quote steel bars at 1.80c., Cleveland, but there are still reports that this is being shaded \$1 a ton.

Automobile companies are specifying liberally for steel bars, sheets and strip steel, but they can obtain good deliveries and are not ordering very far ahead. A heavy production of motor cars appears to be assured for at least the first quarter, as a large output will be required to stock dealers with new models. The real test of new prices on sheets and hot-rolled strip steel will not come before March or April, as motor car manufacturers and parts makers are covered for the quarter at the old prices.

The outstanding inquiry in the structural field is for 20,000 tons for commercial buildings in connection with the Cleveland Union Terminals project. Several other good sized lots are expected to be required for this project during the year.

**Pig Iron.**—Sales by Cleveland interests during the week totaled over 25,000 tons, or about the same as the previous week. There is more activity in Michigan than in other sections. The business came mostly from small foundries, as many of the larger consumers had previously covered for first quarter. Producers as a rule have good order books for the quarter, and a somewhat firmer stand is being taken on prices. While \$17 is the common Lake furnace quotation, for foundry and malleable iron, \$16.50 has not disappeared in competitive sections in southern Ohio and Indiana, and silicon differentials are still being waived or split. One producer has advanced its price in Michigan to \$18. Shipping orders show considerable gain and some furnaces expect to ship more iron than they make this month. Foundries in the automotive industry have increased production, although some are not yet operating at full capacity. Heavy specifications are coming from this source.

*Prices per gross ton at Cleveland:*

N't'n No. 2 fdy., sil. 1.75 to 2.25.....	\$18.50
Southern fdy., sil. 1.75 to 2.25.....	22.00
Malleable.....	18.50
Ohio silvery, 3 per cent.....	28.00
Basic, Valley furnace.....	17.00
Standard low phos., Valley furnace.....	\$26.50 to 27.00

Prices, except on basic and low phosphorus, are delivered Cleveland. Freight rates: 50c. from local furnaces; \$3 from Jackson, Ohio; \$6 from Birmingham.

**Coke.**—One maker of premium foundry coke in the Connellsville district has reduced its price 25c. a ton to 5.10, at which it is taking contracts for first quarter. Other grades are unchanged, with \$3.75 a minimum. Heating coke ranges from \$2.75 to \$3. The market is inactive.

**Alloy Steel.**—The speeding up of the automotive industry has resulted in a good demand for alloy steel bars. Forge shops in this territory are well filled with automotive work and considerable business is coming from that source. Sales during the week included a 3500-ton lot placed by a Cleveland drop forge plant. Regular quotations are holding well.

**Bolts, Nuts and Rivets.**—Bolt and nut makers are getting good specifications from the automotive industry, railroads and jobbers. There is practically no new business, as nearly all buyers are under contract. Prices

are firm. While rivet specifications have improved somewhat, they are still rather light.

**Rails.**—The Nickel Plate Railroad has purchased 11,500 tons of rails for its 1928 requirements and has taken an option on 7000 tons additional, the total being about the amount that it placed a year ago. One-half the tonnage was placed with Steel Corporation mills and the remainder equally divided between the Bethlehem Steel Co. and the Inland Steel Co.

**Semi-Finished Steel.**—Most consumers are covered for early requirements and specifications are good. There is a range in local prices on sheet bars, depending on location of consumer's plant, some buyers getting a concession of \$1 or more a ton from the \$34 price that prevails in the Youngstown district.

**Sheets.**—The automotive industry is now taking a large tonnage of sheets and specifications from other consumers are fairly good. However, sales are light, as most buyers are under first quarter contract at the old prices. While 2.90c., Pittsburgh, for black and 2.10c. for blue annealed sheets are the general quotations, concessions of \$1 to \$2 a ton are still appearing in these grades. Galvanized sheets are being offered at 3.65c., Pittsburgh, and a fair number of sales are being made for February and March shipment. Automobile body sheets are firm at 4c., Pittsburgh.

**Strip Steel.**—Specifications for hot rolled strip from the automotive industry are heavy, but most consumers are covered at lower prices than are now asked, and not much test of the present prices is expected before March. The common quotations are 1.85c., Pittsburgh, for material 6 to 12 in. wide and 2.05c. for under 6 in. For 12 in. and wider material, mills quote the plate base on 12 gage and heavier and a 2.10c. blue annealed base for lighter than 12 gage. Cold rolled strip is in good demand. An advance to 2.90c., Cleveland, for three tons and over has been announced and will become effective Jan. 25.

**Fluorspar.**—Several small-lot sales of gravel fluorspar are reported at \$15, mines, but on a large tonnage a price of \$14.50 would be available.

**Reinforcing Bars.**—An inquiry has come out for 745 tons for the Whitehouse Crossing grade elimination work, Cleveland. An inquiry from the Cleveland Union Terminals Co., Cleveland, for 1600 tons is still pending. Prices on new billet steel bars are irregular. Rail steel bars are unchanged at 1.65c., mill.

**Warehouse Business.**—Sales improved somewhat the past week, probably because of completion of inventories. Regular prices are being well maintained. Galvanized sheets are in good demand.

**Old Material.**—Scrap is moving better than for some time, mostly in steel making grades, against contracts placed some time ago. A Cleveland mill, which because of its exacting specifications pays higher than the going common market for scrap, has purchased a moderate tonnage of heavy melting steel at \$14.75. Because of expectations by producers and dealers of a better demand and higher prices after the first of the year, scrap did not come out freely for a time, and dealers

paid \$14.10 for heavy melting steel a few days ago, but the market now shows less firmness. The supply has become more plentiful and \$14 is again the ruling quotation. Small lots of blast furnace scrap are moving at \$10.75. Efforts are being made in the Youngstown district to secure a reduction of the present freight rate of \$3.53 on scrap from Detroit to that district, and a meeting sponsored by the Youngstown Chamber of Commerce was held in that city today to consider the matter. Much of the scrap that formerly went from Detroit to the Youngstown district was diverted to Buffalo last year, being shipped by water, and if Youngstown mills can secure a reduction in the rail rate they will be in a better position to compete with Buffalo for the Detroit scrap during the lake shipping season.

Prices per gross ton, delivered consumers' yards:

Basic Open-Hearth Grades	
No. 1 heavy melting steel.....	\$13.75 to \$14.00
No. 2 heavy melting steel.....	13.25 to 13.50
Compressed sheet steel.....	12.75 to 13.00
Light bundled sheet stampings...	11.50 to 11.75
Drop forge flashings.....	12.50 to 13.00
Machine shop turnings.....	9.00 to 9.25
No. 1 railroad wrought.....	11.50 to 12.00
No. 2 railroad wrought.....	13.50 to 14.00
No. 1 busheling.....	11.50 to 12.00
Pipes and flues.....	9.00 to 9.50
Steel axle turnings.....	12.50 to 13.00
Acid Open-Hearth Grades	
Low phosphorus forging crops...	16.50 to 17.00
Low phosphorus, billet, bloom and slab crops.....	17.00 to 17.50
Low phosphorus sheet bar crops...	16.50 to 17.00
Low phosphorus plate scrap.....	16.00 to 16.50
Blast Furnace Grades	
Cast iron borings.....	10.25 to 10.75
Mixed borings and short turnings	10.25 to 10.75
No. 2 busheling.....	10.25 to 10.75
Cupola Grades	
No. 1 cast.....	16.50 to 17.00
Railroad grate bars.....	11.00 to 12.00
Stove plate.....	12.00 to 12.50
Rails under 3 ft.....	18.00 to 18.50
Miscellaneous	
Railroad malleable.....	15.00 to 15.50
Rails for rolling.....	16.25 to 16.50

## Philadelphia

### Pig Iron Advance Brings Out Orders— Railroads Inquire For Barges

PHILADELPHIA, Jan. 17.—Pig iron and steel markets are moderately active, stimulated by a continued demand for small tonnages. Railroad purchasing seems to provide the stimulus for much of the present activity. Steel casting plants are operating on small orders from railroads and shipyards have submitted bids on inquiries for car floats, barges, tugs and lighters from the Pennsylvania and New York Central railroads. The Reading Co. is inquiring for 1000 kegs of railroad spikes.

**Bars.**—There is a fair volume of purchasing, with orders ranging up to 75 and 100 tons in some instances. The basis of 1.80c. per lb., Pittsburgh, or 2.12c. per lb., delivered Philadelphia, is well maintained. A moderate demand for reinforcing bars is developing.

**Shapes.**—Mills are quoting 1.95c. per lb., base, Bethlehem, and 1.92½c. per lb., base, Pottsville, or 2.07c. to 2.08c. per lb., delivered Philadelphia. Prices are being well maintained, but there are outstanding contracts at lower figures. Some large business is in prospect including the Newark Bay and the Tacony-Palmyra bridges. Fifteen barges inquired for by the New York Central Railroad will require a sizable tonnage of 12-in. channels.

**Pig Iron.**—The advance to \$19.50, base, for foundry iron, reported last week, is evidently being maintained by eastern Pennsylvania producers and some small tonnages have been booked at the new level. A producer of basic iron has advanced the price to \$19, base furnace, but no sales are reported. A recent inquiry from a steel castings plant calls for from 3000 to 4000 tons of low phosphorus iron. The Federal Steel Foundry Co., Chester, Pa., recently closed on about 300 tons of this grade. Purchases of foundry iron have included about 1000 tons by the American Engineering Co., Philadelphia, about 1000 tons by the Hajoca Corporation, Philadelphia, and 300 tons by the Consolidated

#### Warehouse Prices, f.o.b. Philadelphia

	Base per Lb.
Plates, ¼-in. and heavier.....	2.50c. to 2.60c.
Plates, ⅜-in. ....	2.80c. to 3.00c.
Structural shapes.....	2.50c. to 2.60c.
Soft steel bars, small shapes and iron bars (except bands)....	2.50c. to 2.60c.
Round-edge iron.....	3.50c.
Round-edge steel, iron finished, 1½ x 1½ in.....	3.50c.
Round-edge steel, planished....	4.30c.
Reinforcing steel bars, square, twisted and deformed.....	2.50c. to 3.00c.
Cold-finished steel, rounds and hexagons.....	3.25c. to 5.25c.
Cold-finished steel, squares and flats.....	3.75c. to 5.75c.
Steel hoops.....	3.85c. to 4.15c.
Steel bands, No. 12 gage to ⅜-in., inclusive.....	3.60c. to 3.90c.
Spring steel.....	5.00c.
Black sheets (No. 24).....	4.25c.
Galvanized sheets (No. 24).....	5.10c.
Blue annealed sheets (No. 10)...	3.15c.
Diamond pattern floor plates—	
¼-in. ....	5.30c.
⅜-in. ....	5.50c.
Rails.....	3.20c.
Swedish iron bars.....	6.60c.



Machine Tool Co., Wilmington, Del. The Baldwin Locomotive Works is reported to have placed 4000 tons of floor and cylinder iron with two makers.

**Prices per gross ton at Philadelphia:**

East. Pa. No. 2 plain, 1.75 to 2.25 sil.	\$20.26
East. Pa. No. 2X, 2.25 to 2.75 sil.	20.76
East. Pa. No. 1X.....	21.26
Basic (delivered eastern Pa.)....	\$19.50 to 20.00
Gray forge .....	19.75 to 20.25
Malleable .....	21.00 to 21.50
Standard low phos. (f.o.b. New York State furnace).....	23.00 to 24.00
Copper bearing low phos. (f.o.b. furnace) .....	23.50 to 24.00
Virginia No. 2 plain, 1.75 to 2.25 sil.	24.54 to 25.04
Virginia No. 2X, 2.25 to 2.75 sil.	25.04 to 25.54

Prices, except as specified otherwise, are delivered Philadelphia. Freight rates: 76c. to \$1.64 from eastern Pennsylvania furnaces; \$4.54 from Virginia furnaces.

**Plates.**—Prices are reported firm at 1.95c. per lb., base, Coatesville and Sparrows Point, or 2.05c. per lb., delivered Philadelphia. Bids have been opened by the Pennsylvania Railroad on six 330-ft. and six 250-ft. steel car floats, two steel tug boat hulls and one steam lighter hull. Buying by oil companies is reported to be improving.

**Sheets.**—Buying is fair with prices still ranging from 2.75c. to 2.90c. per lb., base Pittsburgh, on black and 3.75c. to 3.85c. per lb., base, on galvanized. Blue annealed sheets are quoted on a basis of 2.10c. per lb., on sizes narrower than 40 in. and at 2.20c. per lb., base, Pittsburgh, for wider than 40 in.

**Warehouse Business.**—There has been slightly less activity in the past week and prices still show a tendency to softness. Based on recent sales from stock, sheets are not quotable at more than 4.25c. per lb., base, for black, 5.10c. per lb., base, for galvanized and 3.15c. per lb., base, for blue annealed.

**Ferromanganese.**—Purchasing is small. The price is unchanged at \$100 per ton, seaboard.

**Imports.**—In the week ended Jan. 14, a total of 9135 gross tons of manganese and chrome ore arrived at this port, of which 4945 tons was manganese ore from British West Africa, 2000 tons chrome ore from Portuguese Africa and 2190 tons chrome ore from Greece. A thousand tons of pig iron arrived from India and 25 tons of ferromanganese from Great Britain. Steel imports included 281 tons of shapes, 59 tons of bars, 33 tons of hoops and bands and 29 tons of steel ingots from Belgium, 33 tons of steel ingots from France and seven tons of steel scrap from Germany.

**Old Material.**—Purchasing is of small tonnages with occasional exceptions, such as the reported sale by a large dealer of 1000 tons of cast iron carwheels at \$16.50 per ton, delivered eastern Pennsylvania. A small tonnage of couplers and knuckles is reported to have been closed by one dealer at \$16.50 per ton, delivered. In general, the market shows but little change from the quietness of the past few months.

**Prices per gross ton delivered consumers' yards, Philadelphia district:**

No. 1 heavy melting steel.....	\$13.50 to \$14.00
Scrap T rails .....	13.00 to 13.50
No. 2 heavy melting steel.....	11.00 to 11.50
No. 1 railroad wrought.....	15.25 to 15.75
Bundled sheets (for steel works)	10.50 to 11.00
Machine shop turnings (for steel works) .....	11.00
Heavy axle turnings (or equivalent) .....	12.00 to 12.50
Cast borings (for steel works and rolling mill).....	11.00
Heavy breakable cast (for steel works) .....	15.50 to 16.00
Railroad grate bars .....	12.50 to 13.00
Stove plate (for steel works)....	12.50 to 13.00
No. 1 low phos., heavy, 0.04 per cent and under .....	18.00 to 18.50
Couplers and knuckles.....	16.00 to 16.50
Rolled steel wheels .....	15.50 to 16.00
No. 1 blast furnace scrap.....	10.90 to 10.50
Machine shop turnings (for rolling mill).....	11.00 to 11.50
Wrought iron and soft steel pipes and tubes (new specifications) ..	13.00 to 13.50
Shafting .....	17.50 to 18.00
Steel axles .....	19.00 to 20.00
No. 1 forge fire .....	11.00 to 12.00
Steel rails for rolling .....	15.00 to 15.50
Cast iron carwheels.....	15.50 to 16.50
No. 1 cast .....	16.00 to 16.50
Cast borings (for chemical plant)	15.00 to 15.50

## Third Arbitrator Appointed in Hudson Valley-Tutein Case

David A. Schulte, president Schulte Retail Stores Corporation, New York, has been appointed the third arbitrator in the case of E. Arthur Tutein, Inc., vs. the Hudson Valley Products Corporation, Troy, N. Y. The selection was made by Charles M. Schwab who, as president of the American Iron and Steel Institute, was asked to make the appointment following the failure of the arbitrators designated by the parties to the dispute to agree on a third.

The case had its inception in June, 1927, when the Hudson Valley company cancelled a contract with E. Arthur Tutein, Inc., for the exclusive sale of its products. Subsequently United States Senator Robert F. Wagner was appointed arbitrator for the Hudson Valley company, and Sherman L. Whipple, Boston, arbitrator for the Tutein company. The board of arbitration, now complete, has not yet selected a time for the commencement of hearings.

## Continental Can Plans Purchase of United States Can Co.

The Continental Can Co., New York, is negotiating for the purchase of the United States Can Co., Norwood, Ohio. Directors of the latter company have approved the transaction and have called a meeting of stockholders for Jan. 21 to consider the offer made by the Continental company. If the deal is consummated, it will bring together the second and third largest manufacturers of cans in the United States. Assets of the United States Can Co. are estimated at \$7,000,000 and plants are maintained at Norwood, Ohio; Chicago; St. Louis; Baltimore and Roanoke and Buchanan, Va.

The Continental company also has plans under advisement for the erection of a four-story plant, 140 x 160 ft., on West Thirty-fifth Street, Chicago. The site is adjacent to the proposed factory of the Campbell Soup Co., Camden, N. J.

## Pig Iron Association to Discontinue Statistical Activities

The American Pig Iron Association has issued a statement announcing its intention of discontinuing its statistical activities. Reason for this action is attributed to the "closing down of a large number of the merchant furnaces in the country since 1920, and the further fact that many steel plants are engaged in the sale of merchant iron, making it impossible to collect dependable statistics of the production, sale and shipment of the product or procure any accurate knowledge of the stock on hand."

A meeting of the members of the association was held in Cleveland on Jan. 17 to determine its future policy and the disposition of its cash on hand. No statement was made at the close of the meeting.

## Ask for 50 Per Cent Increase in Cast Pipe Duty

WASHINGTON, Jan. 17.—Formal application has been filed with the Tariff Commission by domestic producers of cast iron pipe for an increase of 50 per cent in the present 20 per cent import duty on that product. The growing volume of cast iron pipe imports, particularly from France, has created apprehension on the part of American producers. Total imports of cast iron pipe for the 11 months ended with November, 1927, were 78,657 gross tons, of which 61,002 tons came from France and 14,185 tons from Belgium. This compares with a total of 71,799 tons for the 11 months ended with November, 1926.

Of the French imports during the 11-month period of last year 35,428 tons came through Atlantic ports; 18,558 tons through Pacific ports and 7015 tons through Gulf ports. The imports from Belgium took a different movement, 12,119 tons coming through Pacific ports and only 2065 tons through Atlantic ports. For the 11 months of 1926 imports of French pipe totaled 48,861 tons and Belgian imports 18,386 tons.

## San Francisco

### Pipe Line to Take 14,000 Tons—2000 Cars Soon in Market

SAN FRANCISCO, Jan. 14 (*By Air Mail*).—Buying of steel products so far this year has shown a substantial improvement over the volume placed during the last two weeks of 1927, and the outlook is encouraging. The Pacific Fruit Express will shortly be in the market for 2000 refrigerator cars.

Building and construction activity on the Pacific Coast this year may exceed operations for 1927. Estimates of prospective construction work in San Francisco, based on plans now on the architects' boards, placed the total for the year at over \$60,000,000, while estimates on the more important projects in Los Angeles and other southern California cities, show more than \$65,000,000 worth of work in sight.

**Pig Iron.**—Sales and inquiries call only for small lots for prompt shipment. Prices are unchanged.

Prices per gross ton at San Francisco:

*Utah basic	.....	\$25.00 to \$26.00
*Utah foundry, sil. 2.75 to 3.25	...	25.00 to 26.00
**Indian foundry, sil. 2.75 to 3.25	...	24.00 to 25.00
**German foundry, sil. 2.75 to 3.25	...	24.25

\*Delivered San Francisco.

\*\*Duty paid, f.o.b. cars San Francisco.

**Shapes.**—During the week seven awards of fabricated steel totaled 1160 tons. An award is expected next week on 6000 tons for an office building in San Francisco. Foreign shapes are about 1.60c., c.i.f., duty paid, while domestic material is firm at 2.35c., c.i.f. Coast ports.

**Plates.**—An inquiry of the Petroleum Securities Co., Los Angeles, for tanks for its new Richmond, Cal., plant involves from 700 to 2500 tons of plates. Plate prices are firm at 2.25c., c.i.f., this figure applying on large and small lots.

**Bars.**—The Pacific Fruit Express Co., San Francisco, has taken bids on 475 tons of merchant bars and bands and on 45 tons of plates and 105 tons of sheets. The Bethlehem Steel Co. obtained an additional 1500 tons for the Coyote Point bridge across San Francisco Bay, bringing the total to 10,000 tons.

**Cast Iron Pipe.**—Considerable activity is noted in the cast iron pipe market, and awards this week included 1510 tons of 4 to 14-in. class B pipe for Santa Clara, Cal., placed with J. Tobin, Oakland, Cal.; 401 tons of 2 to 10-in. class B pipe for the Los Angeles County Water Works District No. 10, booked by the United States Cast Iron Pipe & Foundry Co., and 153 tons of 6 and 10-in. class B pipe for the improvement of Main Street, San Diego, Cal., placed with the Butterfield Construction Co. of San Diego. The United States Cast Iron Pipe & Foundry Co. was low bidder on 2825 tons of 6 to 24-in. pipe for Portland, and probably will be awarded the contract for DeLavaud pipe. It was also low on 340 tons of 4 to 12-in. class D pipe for The Dalles, Ore. Bids were opened this week on 1246 tons of 2 to 12-in. class B pipe for Spokane, Wash., and on 125 tons of 4 to 10-in. class B pipe for El Segundo, Cal. Chowchilla, Cal., will open bids on Jan. 20 for 188 tons of 4 to 8-in. class B pipe and San Diego, Cal., will take bids on Jan. 30 for 369 tons of 4 to 8 in. class B pipe for the improvement of streets in Paradise Hills. Prices remain around \$35 a ton delivered on 6-in. and larger.

**Steel Pipe.**—The Petroleum Securities Co., Los Angeles, probably will award a contract shortly for 650 tons of 3½ to 16-in. plain-end line pipe for its new

#### Warehouse Prices, f.o.b. San Francisco

Base per Lb.

Plates and structural shapes	.....	3.15c.
Soft steel bars	.....	3.15c.
Small angles, ½-in. and over	.....	3.15c.
Small angles, under ½-in.	.....	3.55c.
Small channels and tees, ¼-in. to 2¼-in.	.....	3.75c.
Spring steel, ¼-in. and thicker	.....	5.00c.
Black sheets (No. 24)	.....	4.80c.
Blue annealed sheets (No. 10)	.....	3.75c.
Galvanized sheets (No. 24)	.....	5.35c.
Structural rivets, ½-in. and larger	.....	5.65c.
Common wire nails, base per keg	.....	\$3.35
Cement coated nails, 100-lb. keg	.....	3.35

Richmond, Cal., plant. The General Petroleum Corporation, Los Angeles, has an inquiry out for 75 miles of 12 to 16-in. line pipe, and this company has decided to construct two 8-in. lines, each 90 miles long, from the Rincon oil fields to its Los Angeles refinery, involving about 14,000 tons.

**Track Materials.**—The Southern Pacific Co. has not yet taken action on its inquiry for 3120 tons of track spikes and bolts, bids on which went in Dec. 26. It opened bids this week on 880,800 tie plates, about 4500 tons.

**Coke.**—Sales and inquiries are confined to small lots. Prices are unchanged.

## Birmingham

### Pig Iron Shipments Increase—Steel Trade Slowly Improving

BIRMINGHAM, Jan. 17.—The pig iron market during the past week or 10 days has not been very active. Some tonnage in small amounts has been coming in, but no general movement has developed. This is due partly to December buying, to the last quarter carry-over, and to the slow resumption of normal operations. Quotations remain on a \$16 base. Shipments last week were greatly improved as compared with other weeks since mid-December.

Prices per gross ton, f.o.b. Birmingham district furnaces:

No. 2 foundry, 1.75 to 2.25 sil.	.....	\$16.00
No. 1 foundry, 2.25 to 2.75 sil.	.....	16.50
Basic	.....	16.00

**Finished Steel.**—Conditions continue gradually to improve. Inquiries indicate satisfactory prospects. No tonnage of any consequence was booked by structural steel fabricators during the week. Prices are unchanged.

**Cast Iron Pipe.**—Two pressure pipe manufacturers report that inquiries are fair; another reports that they have not been up to expectation. There have been numerous small orders. Plant operations are now on the same schedule as before Christmas.

**Coke.**—There has been a general improvement both in foundry and domestic coke. Cold weather stimulated domestic buying, while restricted December buying is being reflected in the present foundry demand. Quotations continue at \$5 per ton.

**Old Materials.**—Conditions appear more favorable. There were more inquiries last week, but buying was not heavy enough to affect prices.

Prices per gross ton, delivered Birmingham district consumers' yards:

Heavy melting steel	.....	\$10.00 to \$10.50
Scrap steel rails	.....	11.00 to 11.50
Short shoveling turnings	.....	8.00 to 8.50
Cast iron borings	.....	8.00 to 8.50
Stove plate	.....	13.00 to 14.00
Steel axles	.....	19.00 to 20.00
Iron axles	.....	18.00 to 20.00
No. 1 railroad wrought	.....	10.00 to 11.00
Rails for rolling	.....	12.00 to 13.00
No. 1 cast	.....	14.50 to 15.00
Tramcar wheels	.....	12.50 to 13.50
Cast iron carwheels	.....	12.00 to 13.00
Cast iron borings, chemical	.....	13.50 to 14.00

#### Warehouse Prices, f.o.b. St. Louis

Base per Lb.

Plates and structural shapes	.....	3.25c.
Bars, soft steel or iron	.....	3.15c.
Cold-finished rounds, shafting and screw stock	.....	3.75c.
Black sheets (No. 24)	.....	4.45c.
Galvanized sheets (No. 24)	.....	5.25c.
Blue annealed sheets (No. 10)	.....	3.60c.
Black corrugated sheets (No. 24)	.....	4.50c.
Galvanized corrugated sheets	.....	5.30c.
Structural rivets	.....	3.75c.
Boiler rivets	.....	3.75c.

Per Cent Off List

Tank rivets, ⅞-in. and smaller, 100 lb. or more	.....	70
Less than 100 lb.	.....	65
Machine bolts	.....	60
Carriage bolts	.....	60
Lag screws	.....	60
Hot-pressed nuts, square, blank or tapped, 200 lb. or more	.....	60
Less than 200 lb.	.....	50
Hot-pressed nuts, hexagons, blank or tapped, 200 lb. or more	.....	60
Less than 200 lb.	.....	50



## St. Louis

### Pig Iron and Steel Trade Active— Much Heavier Iron Melt

ST. LOUIS, Jan. 17.—Melters in the St. Louis industrial district report a greatly improved business, the pig iron trade continues good, and prospects are for a steady flow of buying. Plants catering to the railroad car trade, wheel foundries, implement makers and radiator concerns are showing a much heavier melt. A steel mill on the East Side is now operating two open-hearth furnaces, and will put on another, having sufficient orders booked now to operate all until June 30. Stove foundries have halted buying temporarily on account of inventory taking. Pig iron makers believe that prices will go higher. Sales of the Granite City maker during the week totaled 8500 tons, all for first quarter shipment. The largest sale was 3000 tons of foundry iron to an East Side melter. All sales were of foundry iron, including 200 tons of malleable. A leading Southern interest sold 800 tons.

#### Prices per gross ton at St. Louis:

No. 2 fdy., sil. 1.75 to 2.25 f.o.b.	
Granite City, Ill. ....	\$19.50 to \$20.00
Northern No. 2 fdy., delivered	
St. Louis .....	20.66
Southern No. 2 fdy., delivered...	20.42
Northern malleable, delivered....	20.66
Northern basic, delivered.....	20.66

Freight rates: 81c. from Granite City to St. Louis; \$2.16 from Chicago; \$4.42 from Birmingham.

**Coke.**—Domestic coke demand is reported less active as a result of warmer weather. Metallurgical grades are moving in fair quantities now that the melt of pig iron is increasing.

**Finished Iron and Steel.**—The Wabash Railroad has bought the necessary bolts, spikes and rail joints for 20,000 tons of rails recently purchased. The orders went to the Illinois Steel Co., Inland Steel Co. and Bethlehem Steel Co. on the same basis as the rails were allocated. The rail joints were purchased from the Rail Joint Co. to be rolled by the mills. The Granite City mill reports starting the new year with a heavy backlog of orders for sheets and plates, and with large specifications against contracts. The car-building trade is also active. Warehouse business is light. Business with structural fabricators is extremely dull.

**Old Material.**—A leading mill in the district has bought about 7500 tons of melting steel for delivery within the next 60 days. This has had the effect of halting the steady advance of this item. Present prices paid by dealers probably will continue until such time as they are covered on this order or until some other large consumer comes into the market for tonnage. The market generally is strong. The only price changes are an advance of 50c. a ton on iron rails and 25c. a ton on No. 1 machinery cast. Railroad lists include: Rock Island, 4800 tons; Chicago & Alton, 1000 tons; Pullman Co. (St. Louis), 200 tons; and Mobile & Ohio, 100 tons.

#### Prices per gross ton f.o.b. dealers' yards and delivered St. Louis district consumers' works:

Heavy melting steel .....	\$12.75 to \$13.25
No. 1 locomotive tires.....	14.00 to 14.50
Heavy shoveling steel.....	12.75 to 13.25
Miscellaneous standard - section rails, including frogs, switches and guards, cut apart.....	14.50 to 15.00
Railroad springs .....	15.25 to 15.75
Bundled sheets .....	9.00 to 9.50
No. 2 railroad wrought .....	12.75 to 13.25
No. 1 busheling .....	11.00 to 11.50
Cast iron borings .....	10.00 to 10.50
Iron rails .....	14.00 to 14.50
Rails for rolling .....	15.50 to 16.00
Machine shop turnings .....	8.50 to 9.00
Steel car axles .....	20.00 to 20.50
Iron car axles .....	24.00 to 24.50
Wrought iron bars and transoms.	21.00 to 21.50
No. 1 railroad wrought .....	11.50 to 12.00
Steel rails, less than 3 ft. ....	16.00 to 16.50
Steel angle bars .....	14.00 to 14.50
Cast iron carwheels .....	14.25 to 14.75
No. 1 machinery cast.....	16.00 to 16.50
Railroad malleable .....	13.00 to 13.50
No. 1 railroad cast .....	14.00 to 14.50
Agricultural malleable .....	12.50 to 13.00
Relaying rails, 60 lb. and under..	20.50 to 23.50
Relaying rails, 70 lb. and over...	26.50 to 29.00

## Canada

### Railroads Placing Equipment Orders —Pig Iron More Active

TORONTO, ONT., Jan. 17.—Canadian railroads are now giving attention to their equipment needs. The Canadian Pacific Railway has placed orders involving an expenditure of upward of \$3,000,000, comprising the following: 20 coaches, 5 cafe parlor cars, 15 palace horse cars, 300 automobile cars, 200 freight refrigerator cars, 50 75-ton Hart Otis ballast cars. The cars will be built by the National Steel Car Co. and the Canadian Car & Foundry Co. Other orders placed include: Newfoundland Railroad, three steam self-propelled passenger cars; and Alberta Government Railways, two cabooses. The Dominion Coal Co. is having 30 automatic drop slide dump cars, built by the Eastern Car Co. The Algoma Central & Hudson Bay Railroad is contemplating ordering some locomotives. The Toronto, Hamilton & Buffalo Railroad is negotiating for three freight locomotives.

**Pig Iron.**—Sales are steadily increasing in the Canadian pig iron markets. Single car orders predominate, but there is also a good sprinkling of orders for 200 to 500 tons for immediate delivery. As the Canadian demand for pig iron tends to improve, outside competition also has become more active. The production of pig iron in Canada continues on the same level as it did throughout the greater part of last month. Five blast furnaces are blowing in Canada. Prices are firmer.

#### Prices per gross ton:

	Delivered Toronto	
No. 1 foundry, sil. 2.25 to 2.75.....	\$23.60	
No. 2 foundry, sil. 1.75 to 2.25.....	23.60	
Malleable .....	23.60	
	Delivered Montreal	
No. 1 foundry, sil. 2.25 to 2.75.....	25.00	
No. 2 foundry, sil. 1.75 to 2.25.....	25.00	
Malleable .....	25.00	
Basic .....	24.00	
	Imported Iron at Montreal Warehouse	
Summerlee .....	33.50	
Carron .....	33.00	

**Old Material.**—Sales for the week again showed improvement over those of the previous week. The improved demand has not brought with it a more active buying movement on the part of dealers, but on the contrary the latter are holding their purchases to a minimum. Prices are somewhat weak, but have not been changed.

#### Dealers' buying prices:

	Per Gross Ton	Toronto	Montreal
Heavy melting steel.....	\$9.00	\$8.00	
Rails, scrap .....	10.00	10.00	
No. 1 wrought .....	9.00	11.00	
Machine shop turnings.....	7.00	6.00	
Boiler plate .....	7.00	7.00	
Heavy axle turnings.....	7.50	7.50	
Cast borings .....	7.50	6.00	
Steel turnings .....	7.00	6.50	
Wrought pipe .....	5.00	6.00	
Steel axles .....	14.00	19.00	
Axles, wrought iron.....	16.00	21.00	
No. 1 machinery cast.....		16.00	
Stove plate .....		12.00	
Standard carwheels.....		14.50	
Malleable .....		13.00	
	Per Net Ton		
No. 1 machinery cast.....	15.00		
Stove plate .....	9.00		
Standard carwheels .....	13.00		
Malleable scrap .....	13.00		

## Youngstown

### New Business Lighter But Mills Are Operating at Good Rate

YOUNGSTOWN, Jan. 17.—New business is somewhat lighter than it has been recently with steel companies here, but this development is commonly regarded as the natural sequence of the fact that consumers are pretty well covered against current requirements and are pausing to let consumption catch up before making further commitments. There has been no letdown in steel works or rolling mill activities, but it is possible that the putting on of additional productive capacity

has been delayed by the recession in new orders and specifications.

The price situation is less disturbing to producers than it was a short time ago, for while present bookings carry prices that yield only a small profit on plant operations as low as those over most of the last half of 1927, the margin is somewhat increased by the fact that there is now an engagement of approximately 75 per cent of steel-making capacity, as compared with less than 50 per cent at the low point of about two months ago. Sheet mill operations in this district are very high and there is a good schedule for the bar mills, while makers of strip steel also are busier than they have been in several weeks. Pipe mill capacity is not heavily taxed, since business is good only in line pipe. Tin plate production, in spite of recent improvement in demand, is well under that at this time last year.

Sheet bars are moving with more freedom as a result of the fuller sheet mill schedules. Makers here insist that the price is \$34, or \$34.50 delivered in the immediate Youngstown district. Mills no longer produce many billets or slabs for the market.

Pig iron business is steady, with makers still quoting No. 2 foundry and malleable iron at \$17.50, furnace, and basic at \$17. Some business in foundry iron has been taken at \$17.50 for shipment at low freight rates. For shipment to more distant points, \$17.25, furnace, has had to be done. Similarly on basic iron, considerably less than the equivalent of \$17, Valley furnace, has been done at some destinations. A Sharon, Pa., steel foundry recently bought 1000 tons of basic iron at \$17, furnace, or \$17.50 delivered.

The scrap market has weakened and heavy melting steel now is not salable at more than \$15.50. While dealers are asking \$15 for compressed sheet scrap, it looks as if they would have to be content with less, as the increased activity of the sheet mills is resulting in increased offerings, and a rising scale of productive activity in the motor car industry is bringing out freer offerings from that direction. Lake navigation being closed, Detroit scrap can move only to its natural rail markets, or to Mansfield, Canton, Massillon or Youngstown. Incidentally, an effort is being made by scrap consumers in those centers to obtain a downward revision of railroad rates on scrap from Detroit, and a meeting is to be held today in Cleveland to consider the matter. This meeting will be followed by a formal presentation of the case to Central Freight Association officials in Chicago.

## Boston

### Cast Iron Pipe Active—Pig Iron Unchanged—Scrap Weaker

BOSTON, Jan. 17.—A sale of 900 tons of special Buffalo pig iron was the largest transaction of the past

#### Warehouse Prices, f.o.b. Boston

	Base per Lb.
Plates .....	3.365c.
Structural shapes—	
Angles and beams.....	3.365c.
Tees .....	3.365c.
Zees .....	3.465c.
Soft steel bars and small shapes.....	3.265c.
Flats, hot-rolled .....	4.15c.
Reinforcing bars .....	3.265c. to 3.54c.
Iron bars—	
Refined .....	3.265c.
Best refined .....	4.60c.
Norway, rounds.....	6.60c.
Norway, squares and flats.....	7.10c.
Spring steel—	
Open-hearth .....	5.00c. to 10.00c.
Crucible .....	12.00c.
Tire steel .....	4.50c. to 4.75c.
Bands .....	4.015c. to 5.00c.
Hoop steel .....	5.50c. to 6.00c.
Cold rolled steel—	
Rounds and hexagons .....	4.05c.
Squares and flats .....	4.55c.
Toe calk steel .....	6.00c.
Rivets, structural or boiler.....	4.50c.
	Per Cent Off List
Machine bolts .....	50 and 5
Carriage bolts .....	50 and 5
Lag screws .....	50 and 5
Hot-pressed nuts .....	50 and 5
Cold-punched nuts .....	50 and 5
Stove bolts .....	70 and 10

week. Several smaller lots of Buffalo iron were sold at \$16.50 to \$17, furnace, for No. 2X, and at \$17 and \$17.50 for No. 1X, also small lots of Mystic and Champlain irons, but the aggregate was unimportant. Quite a tonnage in pending business is reported. The advance of 50c. a ton on eastern Pennsylvania iron places it at a further disadvantage here, and sales are confined to scattered small lots for mixture purposes.

#### Prices of foundry iron per gross ton, delivered to most New England points:

Buffalo, sil. 1.75 to 2.25.....	\$21.41 to \$21.91
Buffalo, sil. 2.25 to 2.75.....	21.91 to 22.41
East. Penn., sil. 1.75 to 2.25.....	23.15
East. Penn., sil. 2.25 to 2.75.....	23.65
Virginia, sil. 1.75 to 2.25.....	25.71
Virginia, sil. 2.25 to 2.75.....	26.21
Alabama, sil. 1.75 to 2.25.....	22.91 to 24.77
Alabama, sil. 2.25 to 2.75.....	23.41 to 25.27

Freight rates: \$4.91 from Buffalo, \$3.65 from eastern Pennsylvania, \$5.21 all rail from Virginia, \$6.91 to \$8.77 from Alabama.

**Coke.**—No increase in the movement of by-product foundry coke is noted. Prices remain unchanged at \$11.50 a ton, delivered within a \$3.10 freight rate zone. Indications are there will be a change in the price before Feb. 1, but producers are not ready to say in which direction. Railroads have put into effect new rates on fuel from Holyoke, Mass., and Manchester, N. H., an indication of increased competition between gas companies and by-product ovens for domestic coke business. Owing to mild weather, stocks of domestic fuel at Everett, Mass., and at Providence, R. I., have increased. Domestic coke is still on a basis of \$8.50 a ton at ovens, Everett.

**Cast Iron Pipe.**—Wilmington, Mass., has closed with the Warren Foundry & Pipe Co. for approximately 2000 tons of 6 to 14-in. water pipe, and Boston has ordered 900 tons of 8-in., 50 tons of 10-in., 800 tons of 12-in. and 50 tons of 30-in. pipe and 250 tons of fittings. The Warren Foundry & Pipe Co. was second low bidder on the Boston business, B. Nicoll & Co. being the lowest. No other open municipal business was closed the past week, but some good tonnages went privately, the aggregate sales running in excess of 6000 tons. Medford, Mass., closed bids Wednesday, Jan. 18, on 250 tons of 6 to 12-in. water pipe. It is reported that Stone & Webster, Inc., is about to close on its 1928 gas pipe requirements, which will be about 2000 tons. Private water pipe sales are at \$45.10 to \$46.10 a ton, delivered common Boston freight rate points, for 4-in. and \$41.10 to \$42.10 a ton for 6 to 12-in. Concessions of \$1 a ton or more are made on larger pipe. The usual \$5 differential is asked on class A and gas pipe.

**Shapes and Plates.**—Fabricators took no large tonnages in the past week, but indications are that several good tonnages will be closed this week. For a new court house at Providence, R. I., calling for 1000 tons of steel, some low fabricated steel prices have been quoted. Railroads are specifying freely against plate contracts. The New Haven recently placed some sizable tonnages. There is a big gasoline tank business, however, but little money in it for the fabricator owing to keen competition. Boiler shops are securing some stack business. The market for standard shapes and plates is firm at 1.80c. per lb., base Pittsburgh.

**Warehouse Business.**—Warehouse prices are steadier than they have been in months. Most sellers are now holding to list prices.

**Cold Rolled Strip Steel.**—Prices are steady and unchanged.

**Mill Prices on Cold-Rolled Strip in North Atlantic States:** In 1 to 3-ton lots, 3.25c. per lb., base Pittsburgh, and also, 3.25c. to 3.40c. per lb., base Worcester, Mass.

**Reinforcing Bars.**—About 5000 tons of bars involved in the Sears, Roebuck & Co. plants at Boston and Cambridge is not yet placed. Current activity is confined to small tonnages, which in the aggregate are fairly satisfactory. Prices remain firm on a basis of 1.90c. a lb., Pittsburgh, or 2.26½c., delivered common Boston freight rate points. Warehouse prices range from 2.70c. to 2.75c., base, mostly 2.75c.

**Old Material.**—Most of the transactions in heavy melting steel the past week were at \$9.10 a ton on cars, shipping point, while the average range of quotations is \$9 to \$9.25. Current activity is largely confined to that material and long bundled skeleton, scrap rails,



steel turnings, mixed borings and turnings, forged scrap, forged flashings and specification pipe. Supplies of scrap in first hands are comparatively small, and a feeling persists among dealers that it would not take much of an increase in buying to lift values. In contrast, further weakness was reported yesterday from the Pittsburgh district.

*Buying prices per gross ton f.o.b. Boston rate shipping points:*

No. 1 heavy melting steel.....	\$9.00 to \$9.25
Scrap rails .....	8.75 to 9.00
No. 1 railroad wrought .....	10.50 to 11.00
No. 1 yard wrought .....	8.50 to 9.00
Machine shop turnings .....	6.00 to 6.50
Cast iron borings (steel works and rolling mill).....	6.00 to 6.25
Bundled skeleton, long.....	5.60 to 6.00
Forge flashings .....	6.00 to 6.50
Blast furnace borings and turnings .....	6.00 to 6.25
Forge scrap .....	6.00 to 6.50
Shafting .....	13.00 to 13.50
Street car axles .....	15.50 to 16.00
Wrought pipe (1 in. in diameter, over 2 ft. long).....	7.50 to 8.00
Rails for rerolling .....	10.00 to 10.50
Cast iron borings, chemical.....	10.00 to 10.50

*Prices per gross ton delivered consumers' yards:*

Textile cast.....	\$14.00 to \$14.50
No. 1 machinery cast.....	14.00 to 15.00
No. 2 machinery cast.....	12.50 to 13.00
Stove plate .....	11.00 to 11.50
Railroad malleable .....	13.00 to 13.50

## Cincinnati

### Foundries Making Automobile Castings Increase Melt—Scrap Higher

CINCINNATI, Jan. 17.—While foundries associated with the automotive industry have increased operations, jobbing foundries in this district are running on a sharply curtailed basis. Consequently the general demand for foundry iron has been light. Prices are attracting little comment, because the situation is such that no downward turn is anticipated and, on the other hand, the condition of the market does not encourage an advance. Lake Erie iron is being sold at \$16.50, base furnace, and southern Ohio iron at \$19, base furnace. The schedule on Tennessee and Alabama iron is unchanged at \$16, base Birmingham. A central Indiana foundry is reported to have closed for 1400 tons. Inquiries include 800 tons for a Dayton, Ohio, company and 500 tons for the American Seeding Machine Co. at Springfield, Ohio, the former specifying second quarter delivery.

*Prices per gross ton, delivered Cincinnati:*

So. Ohio fdy., sil. 1.75 to 2.25....	\$20.89
So. Ohio malleable .....	\$20.14 to 20.89
Alabama fdy., sil. 1.75 to 2.25....	19.69
Alabama fdy., sil. 2.25 to 2.75....	20.19
Tennessee fdy., sil. 1.75 to 2.25....	19.69
Southern Ohio silvery, 8 per cent	26.89

Freight rates, \$1.89 from Ironton and Jackson, Ohio; \$3.69 from Birmingham.

**Finished Material.**—Increasing signs are evidence of a gradually strengthening market. Now that consumers have completed inventories and are in a position to know definitely their immediate requirements, mills are receiving numerous requests for prompt ship-

#### Warehouse Prices, f.o.b. Cincinnati

	Base per Lb.
Plates and structural shapes....	3.40c.
Bars, soft steel or iron.....	3.30c.
Reinforcing bars .....	3.30c.
Hoops .....	4.00c. to 4.25c.
Bands .....	3.95c.
Cold-finished rounds and hexagons	3.85c.
Squares .....	4.35c.
Open-hearth spring steel.....	4.75c. to 5.00c.
Black sheets (No. 24).....	4.05c.
Galvanized sheets (No. 24).....	4.90c.
Blue annealed sheets (No. 10)....	3.60c.
Structural rivets .....	3.85c.
Small rivets .....	.65 per cent off list
No. 9 annealed wire, per 100 lb.....	\$3.00
Common wire nails, base per keg.....	2.95
Cement coated nails, base 100 lb. keg.....	2.95
Chain, per 100 lb.....	7.55
	Net per 100 Ft.
Lap-welded steel boiler tubes, 2-in.....	\$18.00
4-in.....	38.00
Seamless steel boiler tubes, 2-in.....	19.00
4-in.....	39.00

ment of material. Usually specifications ask for January and February deliveries, although a few users have anticipated their needs for the entire first quarter. The outlook for sheet producers in this district is particularly bright. There is a well balanced demand from the automobile industry, while railroads and electrical manufacturers have been liberal purchasers. In fact, all consuming lines have come forward with orders so that mills necessarily have had to increase operating schedules to meet delivery promises. In some cases backlogs are sufficient to insure continuance of production on the recently established scale for two weeks. Another indication of stability is the fact that consumers who had failed to protect themselves at the old prices are now paying the new prices with little protest. There is some shading of quotations in galvanized sheets, but this is the exception rather than the rule, most orders being booked at 3.75c., base Pittsburgh. In blue annealed stock the ruling price of 2.10c. on widths up to 40 in. has not been questioned, while black sheets are steady at 2.90c. Bars, structural shapes and plates are firm at 1.80c., base Pittsburgh. The structural steel market is quiet, but several important jobs are in the making. Common wire nails are being held at \$2.55 per keg, Ironton or Pittsburgh, with barge rates applying on shipments to consuming points along the Ohio River.

**Warehouse Business.**—There has been a slight improvement in sales, but business remains at a low point. Tank plates is the only commodity for which there is a pronounced demand. Irregularities which have existed for a considerable time in common wire nails have practically disappeared, and jobbers are maintaining the published price of \$2.95 a keg. Quotations on other products are firm.

**Coke.**—Expansion of activities in foundries producing automobile castings has brought about an increased movement of by-product foundry coke since Jan. 1, and present indications are that shipments this month will run considerably ahead of those in December. The domestic coke market, however, is glutted with material which has not been sold on account of the mild weather. Sales of Wise County and New River beehive coke have been small.

*Foundry coke prices per net ton, delivered Cincinnati:* By-product coke, \$9.52 to \$9.64; Wise County coke, \$7.59 to \$8.09; New River coke, \$10.09 to \$10.59. Freight rates: \$2.14 from Ashland, Ky.; \$2.59 from Wise County and New River ovens.

**Old Material.**—Heavy melting steel has advanced 25c. a ton and several other items also have gone to higher levels in the past week. While stronger prices are largely attributed to the speculation of dealers, the stepping up production in steel plants in this district, with the probability of the need for more scrap, has been a factor.

*Dealers' buying prices per gross ton f.o.b. cars, Cincinnati:*

Heavy melting steel.....	\$11.75 to \$12.25
Scrap rails for melting.....	12.50 to 13.00
Loose sheet clippings.....	9.00 to 9.50
Bundled sheets .....	9.50 to 10.00
Cast iron borings .....	8.50 to 9.00
Machine shop turnings.....	8.50 to 9.00
No. 1 busheling .....	10.50 to 11.00
No. 2 busheling .....	7.50 to 8.00
Rails for rolling.....	13.00 to 13.50
No. 1 locomotive tires.....	13.50 to 14.00
No. 1 railroad wrought.....	11.50 to 12.00
Short rails .....	17.00 to 17.50
Cast iron carwheels.....	13.00 to 13.50
No. 1 machinery cast .....	16.00 to 17.00
No. 1 railroad cast .....	13.50 to 14.00
Burnt cast .....	8.00 to 8.50
Stove plate .....	9.25 to 9.75
Brake shoes .....	10.00 to 10.75
Railroad malleable .....	12.75 to 13.25
Agricultural malleable .....	12.25 to 12.75

#### Warehouse Prices, f.o.b. Buffalo

	Base per Lb.
Plates and structural shapes.....	3.40c.
Soft steel bars .....	3.30c.
Reinforcing bars .....	2.75c.
Cold-finished flats, squares and hexagons.	4.45c.
Rounds .....	3.95c.
Cold rolled strip steel.....	5.85c.
Black sheets (No. 24).....	4.30c.
Galvanized sheets (No. 24).....	5.15c.
Blue annealed sheets (No. 10).....	3.80c.
Common wire nails, base per keg.....	\$3.65
Black wire, base per 100 lb.....	3.90

## Buffalo

### Steel Works Operations Average 70 Per Cent—Scrap Stronger

BUFFALO, Jan. 17.—Inquiry is light for sizable tonnages of pig iron, but a number of small lots are pending. The New York Air Brake Co. has been seeking 1000 tons of malleable for its Watertown, N. Y., plant. Another Watertown melter bought 500 tons of foundry. A few small inquiries came out of New Jersey. The Donner Steel Co., which banked a furnace the first of the month, will have it back in blast by the early part of February. On Buffalo district quotations \$17 is firmly held.

#### Prices per gross ton, f.o.b. furnace:

No. 2 plain fdy., sil. 1.75 to 2.25.....	\$17.00
No. 2X foundry, sil. 2.25 to 2.75.....	17.50
No. 1X foundry, sil. 2.75 to 3.25.....	18.50
Malleable, sil. up to 2.25.....	17.50
Basic .....	17.00
Lake Superior charcoal.....	27.28

**Finished Iron and Steel.**—General business is good, with mill operation continuing to average around 70 per cent. The Lackawanna plant of the Bethlehem Steel Co. has been able to maintain an uninterrupted output of 85 per cent for some weeks and the Seneca Iron and Steel Co. is likewise operating at this rate. Other mills are around 50 or 60 per cent. Bars, shapes and plates are steady at 1.90c. Bolt and nut prices are fairly firm, though there has been some shading. Pipe specifications are holding up well, though the general plumbing and supply business is not active. Black sheet prices range between 2.80c. and 2.90c., and the price on auto body sheets for prompt delivery is 4c. Reinforcing bar makers expect to take considerable business in the near future, as some sizable jobs are being figured.

**Old Material.**—Dealers have been making rather an active market in steel, some of them having paid as high as \$15 to \$15.50 for No. 1 heavy melting steel, applying it against orders taken at \$15. There has been no new buying by the mills, but shipments to one mill have gained a little. The steel rail market shows a little strengthening, with the price now \$16.50 to \$17. Railroad lists closing the end of the week brought higher prices than the mills have paid, No. 1 steel selling at \$15.25.

#### Prices per gross ton, f.o.b. Buffalo consumers' plants:

Basic Open-Hearth Grades	
No. 1 heavy melting steel.....	\$14.50 to \$15.00
No. 2 heavy melting steel.....	13.25 to 13.50
Scrap rails .....	13.75 to 14.25
Hydraulic compressed sheets....	13.50 to 14.00
Hand bundled sheets .....	8.50 to 9.00
Drop forge flashings .....	11.50 to 12.00
No. 1 busheling .....	13.50 to 14.00
Heavy steel axle turnings.....	12.75 to 13.25
Machine shop turnings .....	9.00 to 9.25
Acid Open-Hearth Grades	
Railroad knuckles and couplers..	15.50 to 15.75
Railroad coil and leaf springs...	16.00 to 16.50
Rolled steel wheels .....	14.75 to 15.25
Low phosphorus billet and bloom ends .....	15.75 to 16.00
Electric Furnace Grades	
Heavy steel axle turnings.....	12.75 to 13.25
Short shoveling steel turnings...	10.75 to 11.00
Blast Furnace Grades	
Short shoveling steel turnings...	10.75 to 11.00
Short mixed borings and turnings	11.00 to 11.50
Cast iron borings .....	11.00 to 11.50
No. 2 busheling .....	9.00 to 9.50
Rolling Mill Grades	
Steel car axles .....	16.00 to 16.50
No. 1 railroad wrought .....	12.00 to 12.50
Cupola Grades	
No. 1 machinery cast.....	14.50 to 15.00
Stove plate .....	12.75 to 13.00
Locomotive grate bars .....	10.50 to 11.00
Steel rails, 3 ft. and under.....	16.00 to 16.50
Cast iron carwheels.....	14.00 to 14.50
Malleable Grades	
Railroad .....	15.00 to 15.50
Agricultural .....	15.00 to 15.50
Industrial .....	15.00 to 15.50

The Struthers Furnace Co. has established headquarters in the office building at Struthers, in connection with the merchant stack, and has abandoned its offices in the City Bank Building, Youngstown. Plans are being developed to start the furnace in the spring.

## Detroit

### Steady Improvement in Business—Automobile Schedules Increased

DETROIT, Jan. 17.—Conditions in the steel market in the Detroit area are showing improvements, as reflected by the steady increase in production in the automotive industry. For the first time since the summer of 1926 the employment index for the area shows an increase over figures for the preceding year. For the week ended Jan. 3 this increase was 960 compared with the corresponding week in 1927.

The Hudson Motor Co. is scheduling a larger production than for any previous year. The Hudson Essex Co.'s present schedule is almost double that of last year, and the number of men employed will soon reach 20,000 at the present rate of increase.

The Ford Motor Co.'s payroll now amounts approximately to 83,000 men, with 50,500 at the Fordson plant, 27,800 at Highland Park and 4700 at the Lincoln plant. The increase since Dec. 22 amounts to 5700.

Prices in the alloy steels have not changed from previously quoted figures, but are firmer. The question of deliveries is now becoming important, a condition which has not existed recently. Practically the same conditions apply to auto body sheet and blue annealed sheet.

The demand for structural shapes, bars and plates is not as active as in December. Prices remain firm at 1.80c., Pittsburgh, for large lots and 1.90c. for carloads and less. Most of the present volume is made up of small orders.

Pig iron booked for the quarter is on a par with the same period in 1927 and melters are specifying increased tonnages.

Automotive shops are on a high production basis and radiator, stove and furnace manufacturers are getting into production and will show a volume considerably above the last quarter of 1927.

The market on old material in the district remains firm with no advances registered during the past week.

#### Dealers' buying prices per gross ton, f.o.b. cars, Detroit:

Heavy melting and shoveling	
steel .....	\$12.00 to \$12.50
Boring and short turnings.....	9.00 to 9.50
Long turnings .....	7.75 to 8.25
No. 1 machinery cast .....	16.00 to 17.00
Automobile cast.....	18.00 to 19.00
Hydraulic compressed sheets....	10.75 to 11.25
Stove plate .....	11.50 to 12.50
No. 1 busheling .....	9.50 to 10.00
Sheet clippings .....	7.50 to 8.00
Flashings .....	10.00 to 10.50

### Automotive Output High

With a good start given to motor car sales by public interest in the new products exhibited at the New York show, says *Automotive Industries*, production at the factories is at a high level for the season. It is estimated that current output is 20 to 25 per cent above the rate of the corresponding period of 1927. The carry-over of unsold cars into 1928 was exceptionally moderate, and dealers in many lines are in position to stock cars for demonstration as well as deliveries.

Motor vehicle registrations in the United States totaled 23,302,668 on Jan. 1, 1928, according to figures compiled by *Automotive Industries*. This compares with 22,046,957 at the beginning of 1927. Passenger cars alone totaled 20,333,988, against 19,207,808 on the earlier date, while trucks and buses at 2,968,680 compared with 2,839,149 at the beginning of 1927.

Discussion of "What Is the Limiting Temperature in Central Station Operation" will be led by V. T. Malcolm, metallurgical engineer Chapman Valve Mfg. Co., Indian Orchard, Mass., at a meeting of the power division of the American Society of Mechanical Engineers to be held at the Engineering Societies Building, New York, on the evening of Jan. 30.



## OBITUARY

**WILLIAM SCHWANHAUSSER**, chief engineer of the Worthington Pump & Machinery Corporation, New York, died on Jan. 15 at the Peck Memorial Hospital, Brooklyn, after an illness of three months. He was 73 years of age. Born at Wurzburg, Bavaria, Mr. Schwanhausser received apprenticeship training in a sugar machinery manufacturing plant in that country, and later attended the Polytechnic Institute in Mittweida, Saxony, from which he received an M.E. degree. After coming to this country, he was employed by Osterheld & Eichmeyer, Yonkers, N. Y., where he assisted in the development of engines, pumps, typewriters and other equipment. Later he served for eight years as assistant general superintendent of the Otis Elevator Co. In 1885 he was placed in charge of the manufacture of trade pumps for the Worthington Pump Works, Brooklyn. He took charge of the Worthington plant in Germany in 1895 and in 1906, was made chief and consulting engineer of the International Steam Pump Co., which later became a part of the present Worthington organization. He was a member of the American Society of Mechanical Engineers, the Institute of Mechanical Engineers of Great Britain, the Naval Architects of Great Britain and Germany, the Technical Society of New York and of the Verein Deutscher Ingenieure of Berlin.



W. SCHWANHAUSSER

**ALEXANDER E. OUTERBRIDGE, JR.**, for nearly 40 years metallurgist for William Sellers & Co., Inc., Philadelphia, died on Jan. 15 at his home in Chestnut Hill, Pa. He was born in 1850 and had devoted his life to metallurgical work prior to partial retirement some years ago. Last month he was awarded the William H. McFadden gold medal of the American Foundrymen's Association in recognition of his contributions to the knowledge of cast iron metallurgy. Coincident with this award a more detailed account of Mr. Outerbridge's career appeared in *THE IRON AGE* of Dec. 15, 1927, page 1704.

**CHARLES A. KNILL**, associated for nearly 40 years with Charles A. Besly & Co., 118 North Clinton Street, Chicago, died at Rochester, Minn., on Dec. 24.

**RICHARD J. DIBOWSKI**, secretary, a director and one of the founders of the Wadsworth Electric Mfg. Co., Covington, Ky., died recently at his home in that city, aged 53 years. He was a director of the Associated Industries of Kentucky and was prominently identified with civic and social activities in that State.

**J. A. HELLSTROM**, president of the Richard Mfg. Co., Bloomsburg, Pa., and also chief engineer of the Wheeling Mold & Foundry Co., Wheeling, W. Va., died recently at his home in Wheeling. He was a graduate of the University of Stockholm, Sweden, and came to this country shortly after finishing his college training to enter the service of the Baldwin Locomotive Works, Philadelphia. He was later associated with the Cambria Iron Co., the Du Bois Iron Works and the Jones & Laughlin Steel Co. He went to Wheeling as chief engineer of the Mold & Foundry company in 1905. He had been associated with the Richard company for 10 years.

**JULIUS JONSON**, for 20 years president and general manager of the former Jonson Foundry & Machine Co., 118th Street and Harlem River, New York, and well

known as an engineer and an inventor, died at his home in Mount Vernon, N. Y., on Jan. 2. He was born in Germany in 1843 and came to the United States when he was four years old. He was graduated from the Maryland Institute of Design, Baltimore, and during the Civil War was in charge of the construction of engines for Federal gunboats. After the war he was associated for several years with the Cumberland Coal & Iron Co., Cumberland, Md. After locating in New York he served as assistant engineer in the Department of Public Works, and was prominently identified with the construction of street railroads. He is credited with the invention of the crossing gate for railroads.

**ALLEN H. MOORE**, former chairman of the standardization committee of the General Electric Co., Schenectady, N. Y., died Jan. 10 at his home in Albany, N. Y., aged 62 years. He had been in failing health for several months.

**MALLORY P. SPENCER**, general sales manager of the Halcomb plant of the Crucible Steel Co. of America, Syracuse, N. Y., died Jan. 8, from the effects of monoxide gas, inhaled in his garage. He was 45 years of age.

**HARRY BENJAMIN**, president of the Harry Benjamin Equipment Co., St. Louis, died recently at his home in that city after a long illness. He was born at New Orleans, June 10, 1862, and attended the public schools of New Orleans and Cincinnati. At an early age he entered the office of the Block Pollak Iron Co., Cincinnati, advancing to the position of assistant purchasing agent and treasurer. In 1906, when that firm opened a branch office in St. Louis, he took charge, serving until 1911, when the firm was liquidated. He then organized its successor, the Harry Benjamin Equipment Co., specializing in the handling of railroad equipment and metals.

**CHARLES G. TIEFEL**, a director of the Todd Co., Rochester, N. Y., and for many years superintendent of the old firm of O. W. Todd & Co., manufacturers of the protectograph, died in Rochester, on Dec. 27, aged 66 years.

**J. HOWARD McFEELY**, vice-president in charge of sales for the McFeely Brick Co., manufacturer of silica brick, with plants at Latrobe and Port Matilda, Pa., died Dec. 26, at his home in Pittsburgh. He was born in Steubenville, Ohio, 50 years ago but had resided in Pittsburgh since boyhood.

**WILLIAM A. COOPER**, for more than 40 years connected with the Alan Wood Iron & Steel Co., Philadelphia, died Dec. 29 at the age of 73. Until three years ago he was for many years manager of the Schuylkill Iron Works department of the company at Conshohocken, Pa. He was a member of the committee on corrosion of iron and steel of the American Society for Testing Materials.

**HERMAN BELMER**, president of the H. Belmer Co., Cincinnati, jobber of wire goods, died at his home in that city Jan. 7, following an illness of six months. He was 86 years of age. Born in Germany, he came to the United States at an early age and located in Cincinnati. Soon after the Civil War, in which he served with the First Ohio Volunteers, he founded the H. Belmer Co., which for many years has been one of the leading wire jobbing houses in the Cincinnati district. He also was formerly vice-president of the Cincinnati Barbed Wire Fence Co.

**JAMES DOHERTY**, formerly vice-president in charge of sales for the Utica Heater Co. and well known in the stove and heater trade both in Canada and the United States, died suddenly at his home in Chicago on Dec. 26. He was born at Uttoxeter, Ont., and after gaining business experience in his father's company he joined the staff of the Utica Heater Co. and was appointed to the Boston office in charge of New England

territory in 1907. In 1912 he went to Sarnia, Ont., as manager of the Doherty Mfg. Co., Ltd., and effected a considerable enlargement of the plant. After two years he joined the Utica company at its Chicago office, eventually becoming vice-president in charge of sales. While at Chicago he perfected various improvements in smokeless heating boilers which have been made the standard practice of the National Radiator Corporation, with which the Utica Heater Co. was recently merged.

JOHN W. MURRAY, for 26 years superintendent of the spike and bolt department at the Joliet, Ill., works, Illinois Steel Co., died Jan. 6 in a Chicago hospital after an illness of four weeks. He was born at Springfield, Ill., March 1, 1867, and had been an employee of the Illinois company at Joliet since 1885.

WILLIAM WIEMAN, president Wieman & Ward Co., Pittsburgh, coal and coke dealer, died at his home in Sewickley, Pa., Jan. 12. Mr. Wieman was born in Columbus, Ohio, in 1874, but had been located in Pittsburgh and identified with the sale of pig iron, coal and coke for the past 25 years. He was associated with the iron, steel and fuel brokerage firm of Banning, Cooper & Co. before he went into business for himself about 12 years ago.

FREDERICK BRUNE, inventor of labor-saving devices for the sheet metal industry, died at his home in Milwaukee on Jan. 10, aged 70 years. He had been a director of the Barnes Zinc Products Co., Chicago, but retired a year ago.

HERBERT G. THOMSON, president of the Anchor Post Fence Co., New York, died on Jan. 11, immediately following an attack of acute appendicitis which he suffered when leaving the Grand Central Terminal in New York. He was 57 years of age and had been associated with the Anchor Post company and its predecessor since his graduation from the Sheffield Scientific School of Yale University in 1892. He became president of the company in 1902.

DANIEL KENNEDY, president and founder of the Kennedy Valve Mfg. Co., Elmira, N. Y., died on Dec. 14 at Hot Springs, Ark.

EVERETT J. NEVILLE, formerly vice-president and general manager of the C. O. Bartlett & Snow Co., Cleveland, died Jan. 13 in Oakland, Cal. For several years he had represented the Universal Crane Co., Elyria, Ohio, as manager of its California sales. A son, C. J. Neville, is superintendent of the Bartlett & Snow plant.

DAN SHEA, president of the Dan Shea Boiler Works, Inc., Memphis, Tenn., which he founded nearly 50 years ago, died on Jan. 11. He was 71 years of age.

### Fabricated Structural Steel Bookings Make High Total in 1927

WASHINGTON, Jan. 17.—Computed bookings of fabricated structural steel in 1927 totaled 2,750,700 tons, representing 72 per cent of capacity, as against 2,553,540 tons in 1926, representing 67 per cent of capacity, according to the Department of Commerce. The increase in the year's total was 7.7 per cent, placing 1927 second only to 1925 in aggregate tonnage booked. Shipments in 1927 are computed at 2,626,680 tons, or 69 per cent of capacity, as compared with 2,842,920 tons, or 75 per cent of capacity, in 1926.

Bookings in December were 205,165 tons, according to reports received from 184 firms with a capacity of 274,865 tons, as against 187,188 tons in November, according to reports from 199 firms with a capacity of 279,110 tons. Computed bookings in December totaled 238,500 tons, as compared with 213,060 tons in November, while computed shipments were 225,780 tons for each month.

### Philadelphia Foundrymen Appoint Committees for Convention

Arrangements in connection with the thirty-second annual convention and exhibition of the American Foundrymen's Association to be held in Philadelphia, May 14 to 18, were discussed at a meeting at the Union League, Philadelphia, Jan. 13, when representative manufacturers were the guests of G. H. Clamer, president Ajax Metal Co., and past president of the A. F. A.

C. E. Hoyt, executive secretary of the association, informed those present that indications point to the largest exhibit in the history of the organization.

Local committees were appointed and tentative plans for receiving and entertaining delegates were discussed. The chairmen of local committees are as follows:

G. H. Clamer, Ajax Metal Co., general committee; T. H. Addie, American Manganese Bronze Co., golf committee; Ralph Belleville, Joseph Dixon Crucible Co., ladies entertainment committee; J. A. Davies, Westinghouse Electric & Mfg. Co., hotel committee; Frederick M. Devlin, Philadelphia Hardware and Mal-leable Iron Works, entertainment committee; C. F. Hopkins, Ajax Metal Co., finance committee; B. H. Johnson, Cresson-Morris Co., plant visitation committee; Walter L. Kalbach, transportation committee; Laird U. Park, Park & Williams, Inc., reception committee; Earl S. Sparks, Metal Manufacturers' Association of Philadelphia, publicity committee.

### A. W. Berresford Elected President of Engineering Council

The American Engineering Council at its annual meeting held in Washington, Jan. 10 and 11, elected A. W. Berresford, electrical engineer, New York, as president for 1928. Mr. Berresford, who is a past president of the American Institute of Electrical Engineers, succeeds Dr. Dexter S. Kimball, dean of the college of engineering, Cornell University.

Vice-presidents of the council are: L. P. Alford, New York; O. H. Koch, Dallas, Tex.; I. E. Moulthrop, Boston, and G. S. Williams, Ann Arbor, Mich. H. L. Howe and L. W. Wallace, Washington, were again named treasurer and executive secretary, respectively. James T. Grady, Columbia University, New York, continues as publicity director.

Among other activities of the council was the discussion and vote of approval of a bill pending in Congress which would place the proposed National Hydraulic Laboratory in the Bureau of Standards. The council also favored in principle that section of a House bill which provides for the establishment of a bureau of labor statistics in the Department of Labor, but withheld indorsement for the creation of a safety museum.

### Plans Arbitration for Steel Industry

Arbitration in industrial disputes soon may be adopted in the steel industry, according to Charles M. Schwab. Speaking at a luncheon at the Lawyers Club, New York, given by United States Attorney Charles H. Tuttle and the American Arbitration Association, Mr. Schwab said that he hoped to introduce a resolution at the next meeting of the American Iron and Steel Institute, officially bringing arbitration into use in the industry. He pointed out that in his own experience with the Carnegie and Bethlehem companies he had always found this method of settling disputes preferable to industrial litigation, and that the procedure when carried throughout the industry, would help to bring about good will both within and among the companies.

The application of motion study both in industrial and retail fields will be discussed and illustrated by motion pictures at a meeting of the management division of the American Society of Mechanical Engineers, to be held at the Engineering Societies Building, New York, on the evening of Jan. 30. One of the speakers will be J. A. Piacitelli, engineer Barber Asphalt Co., Maurer, N. J.



## FABRICATED STRUCTURAL STEEL

### New Projects Involve 41,400 Tons With 20,000 Tons for Cleveland Terminal Work

Awards, amounting to 22,750 tons in the last week, included 10,500 tons for an apartment and two office buildings in Chicago. Three buildings for the Cleveland Union Terminals Co., requiring 20,000 tons, brought the total of new projects to 41,400 tons. Awards follow:

PENNSYLVANIA RAILROAD, 500 tons, bridges at Philadelphia, 200 tons, to an unnamed fabricator; bridges at Cape Charles, Va., 200 tons, to American Car & Foundry Co., and bridge at Woodlawn Avenue, Philadelphia, 100 tons, to Bethlehem Steel Co.

STATE OF NEW JERSEY, 200 tons, bridges for State Highway Commission at Clinton, N. J., to Bethlehem Steel Co.

PHILADELPHIA, 460 tons, Tourison Building, Market Street, to Montgomery Iron & Steel Co.

HAGERSTOWN, MD., 125 tons, boiler house, to Jones & Laughlin Steel Corporation.

STATE COLLEGE, PA., 800 tons, recreation building for Penn State College, to Bollinger-Andrews Co., Pittsburgh; previously reported awarded to H. K. Ferguson Co.

SAN ANTONIO, TEX., 3000 tons, Smith Brothers building, to an unnamed bidder.

LA SALLE, ILL., 350 tons, building for Marquette Cement Mfg. Co., to Rock Island Bridge Co., Rock Island, Ill.

BOSTON, 150 tons, building for McMillen Co., to Lehigh Structural Steel Co.

CAMBRIDGE, MASS., 175 tons, Third Street bridge, to Boston Structural Steel Co.

BRISTOL, R. I., 100 tons plates for yacht, to Lukens Steel Co.

NEW YORK, 2900 tons, section 11, route 101, subway; from Arthur A. Johnson Corporation, general contractor, to American Bridge Co.

NEW YORK, 2500 tons, commerce building for College of the City of New York, to Taylor-Fichter Steel Construction Co.; reported last week to an unnamed fabricator.

KEARNY, N. J., 500 tons, three buildings for E. I. duPont de Nemours & Co., to Belmont Iron Works.

SOMERS POINT, N. J., 150 tons, bridge; from F. W. Schwiers, Jr. & Co., general contractors, to Bethlehem Steel Co.

CLEVELAND, 110 tons, Pattison-Letch Co. warehouse addition, to Jones & Laughlin Steel Corporation.

CHICAGO, 4300 tons, Woolworth Building, to American Bridge Co.

CHICAGO, 3200 tons, apartment building at 1500 Lake Shore Drive, to American Bridge Co.

CHICAGO, 3000 tons, Willoughby Building, to American Bridge Co.

CHICAGO, 1700 tons, Clark Street bascule bridge, to American Bridge Co.

ELLENSBURG, WASH., 285 tons, North Branch canal project, United States Bureau of Reclamation, to unnamed fabricator.

SEATTLE, 672 tons, Argo Crossing, to Hofius Steel & Equipment Co.

SAN FRANCISCO, 160 tons, apartment building, Gough and Bush Streets, to Golden Gate Iron Works.

SAN FRANCISCO, 140 tons, apartment building, Broderick and Haight Streets, to Herrick Iron Works.

SAN FRANCISCO, 100 tons, apartment building, Scott Street, to Dyer Brothers.

SAN FRANCISCO, 225 tons, apartment building, Leavenworth and O'Farrell Streets, to Central Iron Works.

CULVER CITY, CAL., 150 tons, City Hall, to Brombacher Iron Works.

LOS ANGELES, 100 tons, apartment building, Bronson and Franklin Avenues, to Brombacher Iron Works.

#### Structural Projects Pending

Inquiries for fabricated steel work include the following:

PHILADELPHIA, 150 tons, building for Abington Hospital.

PHILADELPHIA, 800 tons, building for Army and Navy Y. M. C. A.

CLEVELAND, 700 tons, Whitehouse crossing grade elimination.

CLEVELAND, 20,000 tons, department store, medical office and garage buildings for Cleveland Union Terminals Co.

LINCOLN, NEB., 1000 tons, section of State Capitol Building.

CAMBRIDGE, MASS., 450 tons, Lever Brothers plant addition.

LEOMINSTER, MASS., 100 tons, theater.

LYNN, MASS., 580 tons, Lynn Gas & Electric Co. power house addition.

LINDEN, MASS., 450 tons, boiler house for Linden Gas & Electric Co.; Stone & Webster, general contractors.

BOSTON & MAINE RAILROAD, 1800 tons, bridge at Westboro, N. H.; bids to be retaken.

PROVIDENCE, 1000 tons, Court House.

NEW ROCHELLE, N. Y., 400 tons, bridge to Glen Island for Westchester County Park Commission.

NEW YORK, 5000 tons, Lefcourt Building at Fifth Avenue and Forty-third Street.

NEW YORK, 900 tons, Proctor's Theater at Third Avenue and Fifty-eighth Street.

ITHACA, N. Y., 700 tons, residential building for Cornell University.

PHILADELPHIA, 350 tons, Stanley Theater on Frankford Avenue.

CHICAGO, 1400 tons, Sheridan Towers apartments.

SAND POINT, IDAHO, 1000 tons, highway bridge.

YAKIMA, WASH., 2000 tons, high line syphon.

MEYERS FALLS, WASH., 1700 tons, highway bridge.

SAN FRANCISCO, 700 tons, second unit of apartment building, Chestnut and Hyde Streets; general contract to Dinwiddle Construction Co.

SAN FRANCISCO, 180 tons, shapes for stock for Pacific Fruit Express Co.; bids in.

## RAILROAD EQUIPMENT

### Inquiries for 2300 Freight Cars—Canadian Pacific Purchases 550

Purchases by the Canadian Pacific of 550 freight cars was the outstanding transaction of the week. Pending business continues to increase, the outstanding inquiry coming from the Pacific Fruit Express for 2000 refrigerator cars. Details of the week's business follow:

Union Pacific will buy 23 4-12-2 type locomotives, six gas electric motor cars and eight trailers.

Pacific Fruit Express has issued an inquiry for 2000 refrigerator cars.

Southern Pacific is in market for 300 box car underframes and superstructure parts.

Quarahuy Eltaquy Estrado de Ferro, Brazil, has ordered one Pacific-type locomotive from Baldwin Locomotive Works.

Chicago, Burlington & Quincy will purchase six baggage, three combination passenger-baggage and 150 ballast cars.

St. Louis-San Francisco is inquiring for 30 air-dump cars.

South African Railways are inquiring for 100 40-ton gondola cars.

Great Northern will buy eight 30-cu. yd. air-dump cars.

Canadian Pacific has placed an order for 200 refrigerator cars, 15 palace horse cars and five parlor-café car frames with National Steel Car Corporation, and 300 automobile cars, 50 Hart-Otis ballast cars and 20 first-class passenger car frames with Canadian Car & Foundry Co.

New York Central has placed an order with American Car & Foundry Co. for rebuilding 33 steel underframe passenger coaches.

Mobile & Ohio has ordered three 72-ft. mail and baggage gas-electric rail motor cars from St. Louis Car Co.

Chicago & Alton is inquiring for two postal cars and seven combination baggage and mail cars.

Western Pacific has purchased four café cars from Pullman Car & Mfg. Corporation.

Atchison, Topeka & Santa Fe is inquiring for from 150 to 200 underframes.

Chesapeake & Ohio has made inquiry for 500 70-ton hopper car bodies and for repairs to 500 sets of 70-ton trucks.

### Pig Iron Freight Rates Are Declared Reasonable

WASHINGTON, Jan. 17.—In a decision announced today the Interstate Commerce Commission held that the rate of \$2.60 per gross ton on imported pig iron from Mobile, Ala., to Birmingham and Bessemer, Ala., and the rate of \$3.93 from Mobile to Anniston, Ala., are not unreasonable. Shipperside delivered rates are \$4.16 and \$4.49, respectively. Complaint was made against the rates by the United States Cast Iron Pipe & Foundry Co.

In another decision today the commission held that the rate of \$2.90 per ton on pig iron from Indiana Harbor, Ind., and South Chicago, Ill., to Holland, Mich., is not unreasonable. Complaint against this rate was made by the Holland Furnace Co.

Electric hoist orders in December reported by members of the Electric Hoist Manufacturers' Association increased nearly 22 per cent over the previous month in number and nearly 20 per cent in value. Shipments were 26.5 per cent less in December than in November.

## NON-FERROUS METAL MARKETS

The Week's Prices		Jan. 17	Jan. 16	Jan. 14	Jan. 13	Jan. 12	Jan. 11
	Lake copper, New York....	14.25	14.25	14.25	14.25	14.25	14.25
	Electrolytic copper, N. Y.*..	13.87½	13.87½	13.87½	13.87½	13.87½	13.87½
	Straits tin, spot, N. Y. ....	54.25	54.87½	....	55.20	55.62½	56.25
	Lead, New York.....	6.50	6.50	6.50	6.50	6.50	6.50
	Lead, St. Louis.....	6.30	6.30	6.30	6.30	6.30	6.30
	Zinc, New York.....	5.97½	5.97½	5.97½	5.97½	6.00	6.00
	Zinc, St. Louis.....	5.62½	5.62½	5.62½	5.62½	5.65	5.65

Cents per Pound  
for  
Early Delivery

\*Refinery quotation; delivered price ¼c. higher.

NEW YORK, Jan. 17.—None of the markets is particularly active. The price tendency is fairly steady in all but tin. In the face of small demand, copper prices hold firm. Sales of tin have been fairly heavy at the lowest prices in many months. Conditions in lead are unchanged, and the zinc market is a little softer.

**Copper.**—Very light demand both at home and abroad has been the history of the past week. Leading producers are all adhering to 14.12½c., delivered in the Connecticut Valley, and it is not possible to buy any large quantity of copper lower than this level. There have been a few sales of small quantities of electrolytic copper at around 14.05c. to 14.07½c., delivered, but the business has not been sufficient to establish a market. In fact, the general situation is such that prices are largely nominal. Copper Exporters, Inc., maintains its official quotation unchanged at 13.50c., c.i.f. usual European ports. There have been more inquiries for Lake copper today than yesterday and the quotation is unchanged at 14.25c., delivered. Statistics for December showed an increase in stocks of refined metal of about 4400 tons. The feature of the statistics was the exports for the month. At about 63,600 tons the total was the largest on record.

**Tin.**—Rapidly falling prices in spot Straits tin the past week have brought the quotation, which was 54.25c., New York, today, to the lowest price since May 19, 1925. Sales have been moderately heavy, the total for the week ended Friday, Jan. 13, having been

1300 tons, with 150 tons sold on Saturday. The cause of the decline is that stocks are heavy in many large centers of the world so that the technical situation has been weakened. As a result, sentiment is very bearish. Yesterday and today the market has been only moderately active, with 250 and 200 tons sold on each day respectively. In last week's sales, consumers were the principal buyers, dealers being disheartened at the decline in prices. There has been no support to the market and many of the larger houses, here and in London, have been anxious sellers. Prices in London today were about £7 per ton less than a week ago, with spot standard quoted at £247, future standard at £246 5s. and spot Straits at £247. Arrivals thus far this month have been 2945 tons, with 6500 tons reported afloat.

**Lead.**—The market is quiet and unchanged. No inquiries of magnitude are reported. Late last week consuming demand revived temporarily. The leading interest continues to quote 6.50c., New York, as its contract price, with the price in the outside market at 6.30c., St. Louis.

**Zinc.**—Demand is so light that quotations are nearly nominal and are a little lower than a week ago, at 5.62½c., St. Louis, or 5.97½c., New York, for prime western for early delivery. Consumers are fairly well covered for their nearby requirements. Stocks of ore in the Joplin district at over 51,000 tons on Jan. 1 were the largest ever recorded. Despite this, production for the week ended last Saturday was 12,000 tons, with sales about 8100 tons. The price stands at \$36 per ton, the same as the previous week. When prime western touched 5.60c., St. Louis, late last year, ore was at \$33 per ton.

**Nickel.**—Ingot nickel in wholesale lots is quoted at

### Metals from New York Warehouse

#### Delivered Prices Per Lb.

Tin, Straits pig.....	56.50c. to 57.50c.
Tin, bar .....	58.50c. to 59.50c.
Copper, Lake .....	15.25c.
Copper, electrolytic .....	15.00c.
Copper, casting .....	14.25c.
Zinc, slab .....	7.25c. to 7.75c.
Lead, American pig .....	7.65c. to 8.65c.
Lead, bar .....	9.90c. to 10.90c.
Antimony, Asiatic .....	13.00c. to 13.50c.
Aluminum No. 1 ingot for remelting (guaranteed over 99 per cent pure) ..	27.00c. to 28.00c.
Aluminum ingots, No. 12 alloy ..	26.00c. to 27.00c.
Babbitt metal, commercial grade ..	30.00c. to 40.00c.
Solder, ½ and ½ .....	39.25c. to 40.25c.

### Metals from Cleveland Warehouse

#### Delivered Prices Per Lb.

Tin, Straits pig.....	61.25c.
Tin, bar .....	63.25c.
Copper, Lake .....	15.25c.
Copper, electrolytic .....	15.25c.
Copper, casting .....	14.50c.
Zinc, slab .....	7.75c.
Lead, American pig .....	7.25c.
Antimony, Asiatic .....	16.00c.
Lead, bar .....	9.50c.
Babbitt metal, medium grade.....	19.75c.
Babbitt metal, high grade.....	65.25c.
Solder, ½ and ½ .....	36.75c.

### Rolled Metals from New York or Cleveland Warehouse

#### Delivered Prices, Base Per Lb.

<b>Sheets—</b>	
High brass .....	18.50c. to 19.25c.
Copper, hot rolled .....	22.75c. to 23.75c.
Copper, cold rolled, 14 oz. and heavier, ..	25.25c. to 26.25c.
<b>Seamless Tubes—</b>	
Brass .....	23.37½c. to 24.37½c.
Copper .....	24.50c. to 25.50c.
Brazed Brass Tubes.....	26.50c. to 27.50c.
Brass Rods .....	16.25c. to 17.25c.

#### From New York Warehouse

#### Delivered Prices, Base Per Lb.

Zinc sheets (No. 9), casks.....	10.50c. to 11.00c.
Zinc sheets, open.....	11.00c. to 11.25c.

## Non-Ferrous Rolled Products

Mill prices on bronze, brass and copper products are still being quoted at the advances of Dec. 5. Prices on zinc and lead full sheets have not changed since Aug. 5 and Dec. 1, respectively.

### List Prices, Per Lb., f.o.b. Mill

On Copper and Brass Products, Freight up to  
75c. per 100 Lb. Allowed on Shipments  
of 500 Lb. or Over

<b>Sheets—</b>	
High brass .....	18.75c.
Copper, hot rolled .....	22.75c.
Zinc .....	10.00c.
Lead (full sheets).....	10.00c. to 10.25c.
<b>Seamless Tubes—</b>	
High brass .....	23.62½c.
Copper .....	24.50c.
<b>Rods—</b>	
High brass .....	16.50c.
Naval brass .....	19.25c.
<b>Wire—</b>	
Copper .....	15.75c.
High brass .....	19.25c.
<b>Copper in Rolls .....</b>	<b>21.75c.</b>
<b>Brazed Brass Tubing .....</b>	<b>26.75c.</b>

### Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of Mississippi River and also allowed to St. Louis on shipments to destinations west of that river.

Sheets, 0 to 10 gage, 3 to 30 in. wide....	33.00c.
Tubes, base.....	42.00c.
Machine rods .....	34.00c.



## Rolled Metals, f.o.b. Chicago Warehouse

(Prices over Trucking to Consumers' Doors in City Limits)

Sheets—		Base per Lb.
High brass	.....	18.75c.
Copper, hot rolled	.....	22.75c.
Copper, cold rolled, 14 oz. and heavier	.....	25.00c.
Zinc	.....	11.00c.
Lead, wide	.....	9.75c.
Seamless Tubes—		
Brass	.....	25.12½c.
Copper	.....	26.00c.
Brazed Brass Tubes	.....	26.75c.
Brass Rods	.....	16.50c.

35c., with shot nickel at 36c. and electrolytic nickel at 37c. per lb.

**Antimony.**—The market is quiet and Chinese metal for spot delivery is quoted at 11c., with futures at 11.25c., New York, duty paid.

**Aluminum.**—Virgin metal, 98 to 99 per cent pure, in ingots, is quoted at 23.90c., delivered.

### Non-Ferrous Metals at Chicago

CHICAGO, Jan. 17.—Prices in this market are steady except in tin. Sales of copper are in fair volume. The old metal market is quiet and prices are holding at the levels of last week.

Prices, per lb., in carload lots: Lake copper, 14.25c.; tin, 56.75c.; lead, 6.40c.; zinc, 5.75c.; in less-than-carload lots, antimony, 12.50c. On old metals we quote copper wire, crucible shapes and copper clips, 10c.; copper bottoms, 9c.; red brass, 9c.; yellow brass, 6.75c.; lead pipe, 5c.; zinc, 3.50c.; pewter, No. 1, 34c.; tin foil, 43.50c.; block tin, 52c.; aluminum, 12.50c.; all being dealers' prices for less-than-carload lots.

## REINFORCING STEEL

### Chicago Building Will Take 3000 Tons—New Inquiries Total 7900 Tons, and Awards 5400

Including 1900 tons for subway work in New York and 1200 tons for a sewer at Akron, Ohio, last week's awards amounted to 5400 tons. Outstanding in the 7900 tons added to pending work was a canning building in Chicago which will require 3000 tons. Awards follow:

NEW YORK, 1000 tons, section of subway; from Arthur A. Johnson Corporation, general contractor, to Igoo Brothers.

NEW YORK, 400 tons, two sections of subway, 200 tons from Atwell, Gustin & Morris, general contractors, and 200 tons Moranti & Raymond, Inc., contractor, to Concrete Steel Co.

BROOKLYN, 500 tons, section of Chase Street subway; from Carleton Co., general contractor, to McClintic-Marshall Co.

WAMPAUM, PA., 300 tons, State highway bridge, to Truscon Steel Co.

AKRON, OHIO, 1200 tons, sewer work, to Concrete Steel Co.

CHATTANOOGA, TENN., tonnage being estimated, Fort Wood apartment building, to Connors Steel Co.

CHATTANOOGA, TENN., tonnage being estimated, Read creamery plant, to Connors Steel Co.

BIRMINGHAM, tonnage being estimated, Kennedy school, to Connors Steel Co.

LANCASTER, S. C., tonnage being estimated, filtration plant, to Connors Steel Co., Birmingham.

NEW ORLEANS, tonnage being estimated, addition to Poydras Street docks, to Connors Steel Co.

CHICAGO, 450 tons, Kelly public school, to an unnamed bidder.

AUSTIN, ILL., 100 tons, Post Office building, to Olney J. Dean & Co.

COOK COUNTY, ILL., 160 tons of rail steel bars for road work, to Calumet Steel Co.

EVANSTON, ILL., 100 tons of rail steel bars, Pembridge apartment hotel, to American System of Reinforcing.

ELLENBURG, WASH., 835 tons, North Branch canal project, United States Bureau of Reclamation, to unnamed interest.

ALAMEDA, CAL., 250 tons, factory for N. Clark & Sons, to Badt-Falk Co.

## Old Metals, Per Lb., New York

The buying prices represent what large dealers are paying for miscellaneous lots from the smaller accumulators and the selling prices are those charged consumers after the metal has been properly prepared for their use.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, heavy crucible	12.00c.	13.50c.
Copper, heavy and wire	11.75c.	12.875c.
Copper, light and bottoms	9.75c.	11.00c.
Brass, heavy	7.00c.	8.50c.
Brass, light	6.00c.	7.50c.
Heavy machine composition	9.50c.	10.75c.
No. 1 yellow brass turnings	7.75c.	8.75c.
No. 1 red brass or composition turnings	8.75c.	9.75c.
Lead, heavy	5.25c.	5.625c.
Lead, tea	4.25c.	4.75c.
Zinc	3.75c.	4.25c.
Sheet aluminum	12.75c.	14.50c.
Cast aluminum	12.75c.	14.50c.

SAN FRANCISCO, 100 tons, arena, Post and Steiner Streets, to local jobber.

### Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

NEW YORK, 250 tons, Chevrolet garage and service station at Fifty-sixth Street and Eleventh Avenue; general contract to Turner Construction Co.

CAMDEN, N. J., 900 tons, building for Camden Cold Storage Co.

PHILADELPHIA, tonnage unstated, piers for Tacony-Palmyra bridge.

PHILADELPHIA, 300 tons, building for Army and Navy Y. M. C. A.

PHILADELPHIA, 350 tons, building for Abingdon Hospital.

CLEVELAND, 745 tons, Whitehouse crossing grade elimination.

WHITE PLAINS, N. Y., 200 tons, community building for Westchester County Park Commission.

BOSTON, 100 tons, stores on Newbury Street.

BUFFALO, 125 tons, school No. 47; being figured.

BUFFALO, 150 tons, stadium for Buffalo high schools; plans being prepared.

ROCHESTER, N. Y., 180 tons, State hospital; bids closed Jan. 18.

CHICAGO, 3000 tons, building for Campbell Soup Co.; Henry Ericsson, general contractor.

CHICAGO, 100 tons, Women's Athletic Club; Phillip Maher, architect.

CHICAGO, 186 tons, office building at Washington Boulevard and LaSalle Street.

CHICAGO, 600 tons, Passavant Hospital; Holabird & Roche, architects.

EVANSTON, ILL., 200 tons, Boltwood public school.

EVANSTON, 300 tons, apartment building at corner of Hinman Avenue and Grove Street.

SAN FRANCISCO, 475 tons, merchant bars and bands for Pacific Fruit Express Co.; bids in.

## Improvements in Ferrous Sintering

(Concluded from page 193)

content. They also serve to make the charge more porous and to provide the necessary binder to the material, thus preventing an excessive amount of material being drawn through the grates by suction. No special attempt is made to place a protection or hearth layer on the grates, except that, in distributing the material on the grates, it is so baffled against a forged screen that the coarser particles of returns are screened out and roll down on the grates ahead of the flue dust.

Daily production of the plant described averages about 800 tons of sinter, which may well be considered a good performance, especially as custom sintering is subject to many circumstances not present in privately operated plants.

Although it is not possible to present the exact cost figures of the plant in question, they will not vary materially from the table. The figures represent cost in cents per ton of sinter, based on favorable conditions.

Ignition fuel	2c.
Labor	36
Repairs	24
Power	17
Overhead and royalty	21
	100c.

(To be continued)

## PERSONAL

W. G. Maguire, since 1923 president of the St. Louis Gas & Coke Corporation, St. Louis, has resigned and will be succeeded by M. D. Curran, who has been vice-president, general manager and a director. Mr. Maguire will remain a director of the company but will devote his time to the Utilities Power & Light Corporation, of which the Gas & Coke corporation is a subsidiary. He has been associated with the latter com-



W. G. MAGUIRE



M. D. CURRAN

pany and its predecessors since 1916, having previously been manager of the St. Louis branch of the Domhoff & Joyce Co., Cincinnati. Mr. Curran went to the St. Louis company in 1923 as general superintendent of operations at Granite City, Ill. In 1925 he became vice-president in charge of operations, and the following year, vice-president and general manager. He was actively in charge of the building of the company's second blast furnace and its electric power plant in 1926, and has also been prominently identified with other large engineering projects relating to the gas and light activities of the parent company and its other subsidiaries. Mr. Curran, who is not yet 35 years of age, was born at New Straitsville, Ohio, and was graduated from the Corning, Ohio, high school. He entered the department of mining and metallurgical engineering at Ohio State University in 1909 and, during the summer months of his college years, worked in the coke ovens of the Connellsville district. He also withdrew from the college for a year to work in the ore mining properties of the Republic Iron & Steel Co. in the Mesabi range. He returned to the Republic company, following graduation from Ohio State University in 1914, as burden clerk at the Hazleton furnaces, Youngstown. In less than a year he was made chief chemist of the company's coke plant. In 1916 he became assistant coke oven superintendent for the Toledo Furnace Co., Toledo, Ohio, and two years later was made superintendent of its coke oven plants. In 1920 he became assistant general superintendent of the company's complete operations, holding that position until he went with the St. Louis company in 1923. He has been a director and vice-president of the St. Louis Coal & Iron Co., the company's coal mining subsidiary, and now assumes the presidency of that company. It is understood that Mr. Curran plans to move the general offices of the Gas & Coke corporation back to St. Louis from Chicago where they were taken about a year ago.

Joseph B. Deisher, 24 Roslyn Street, Rochester, N. Y., has been appointed by the American Foundrymen's Association as representative of the malleable foundry industry on an advisory committee to the Department of Commerce. He is one of the three representatives of the iron and steel industry on this committee who are available to the department for consul-

tation and advice concerning their respective branches of the industry. Mr. Deisher for a number of years was connected with the Symington Co., Rochester, and later was associated with the engineering department of the Malleable Iron Research Institute at Albany, N. Y. He recently returned from Europe, where he represented the American Radiator Co. as a specialist on foundry work. Since then he has been engaged in general consulting practice on gray iron foundry work.

H. F. T. Erben, assistant vice-president of the General Electric Co., retired on Jan. 1, after more than 40 years of service with that company. At the time of his retirement he was also vice-chairman of the General Electric manufacturing committee. B. L. Delack has been appointed manager of the Schenectady, N. Y., plant of the General Electric Co., and E. A. Wagner has been made manager of its Pittsfield, Mass., plant. C. N. Gregory has been named manager of the New Haven, Conn., sales office, succeeding Frederic Cutts, and R. B. Ransom has been appointed resident agent in charge of the Hartford, Conn., office, succeeding Mr. Gregory.

Charles A. Fisher, since last April president of the Jones & Laughlin Steel Corporation, Pittsburgh, has resigned. A desire to retire from active business is Mr. Fisher's reason for severing a connection that began in 1898. He was then 22 years old and started with the company as a bookkeeper, successively serving as assistant auditor, assistant treasurer, treasurer, assistant to the president and, before his election to the presidency, as vice-president in charge of finances. For 10 years he was closely associated with the late William Larimer Jones, whom he succeeded as president of the company.

James R. White, for nine years vice-president of Rickard & Co., New York, industrial advertising agency, on Jan. 1 became secretary of Jenkins Brothers, 80 White Street, New York, valve manufacturers. During his association with the Rickard organization Mr. White was in charge of the direction of Jenkins advertising. Associates in Rickard & Co. tendered Mr. White a testimonial dinner at the Hotel Vanderbilt, New York, on Dec. 30.

G. A. Roush has received a leave of absence from the metallurgical faculty of Lehigh University, Bethlehem, Pa., and will devote his time to the development and gathering of exhibits on mining and metallurgy for the Museums of Peaceful Arts, New York. He is open to suggestions concerning suitable materials or models showing industrial progress in ore smelting and metal working.

E. K. Swigart has been elected chairman, and H. M. Swigart, president of the Oilgear Co., Milwaukee.

Charles H. Leinert, president of the Leinert Valve Co., Inc., 310 South Michigan Avenue, Chicago, has been appointed district representative in that city for the Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.

Horace C. Knerr, consulting metallurgical engineer, Philadelphia, will address the Cleveland chapter, American Society for Steel Treating, on "Aircraft Metallurgy," Friday evening, Jan. 20.

Lon Sloan has been placed in charge of a district sales office recently opened at 223 Railway Exchange Building, Chicago, by the Hendrick-Mfg. Co., Carbon-dale, Pa., manufacturer of steel grating, stair treads and kindred products.

Samuel Porcher, assistant vice-president in charge of purchases, stores and insurance for the Pennsylvania Railroad, has retired from active service under the company's pension regulations. He has been in the railroad's service for 46 years.



T. G. McDougal has been appointed vice-president in charge of spark plug ceramic development for the AC Spark Plug Co., Flint, Mich., and will also have supervision over the company's foreign plants at Birmingham, England, and Paris.

John F. Edgerton, president of the National Association of Manufacturers, will be the principal speaker at a meeting of the Central Illinois Unit in Decatur, Ill., Jan. 27, at which manufacturers, bankers and representatives of commercial associations will be guests.

F. M. Kimball has been appointed advisory manager, and J. E. N. Hume, manager, of the motor division of the industrial department, recently created by the General Electric Co., Schenectady, N. Y. The new division will have general supervision of all motors handled by the company's industrial department. K. H. Runkle has been appointed manager of mining and steel mill sales, succeeding Mr. Hume. These appointments were effective Jan. 1.

T. C. Crosby, formerly in the Tulsa, Okla., office of the Graver Corporation, East Chicago, Ind., has been placed in charge of the sale of tanks and steel plate equipment in the new office which has been opened by the company at 201 Petroleum Building, Fort Worth, Tex. H. E. Clark, recently in the company's Houston, Tex., office, will handle sales of refinery equipment, and C. J. Hutcheson, who has been in the home office, will be in charge of water softening and filtering equipment sales at Fort Worth.

Joseph Zubaty, who has been in charge of speedometer and other instrument development of the AC Spark Plug Co., Flint, Mich., for a number of years, has been appointed chief engineer of the company. Before becoming associated with the AC company, Mr. Zubaty was chief engineer of the H. & M. Farman Co., Paris, a leading French airplane manufacturer, and was prominent in the development of the Farman airplane and automobile engines. He is a graduate of Prague University in Czechoslovakia.

J. M. Telford has been made sales manager in Illinois for the Austin Western Road Machinery Co., Chicago, and will have headquarters at Springfield. He has represented the company in the upper peninsula of Michigan for a number of years.

L. F. Rains has been appointed acting general manager of the Columbia Steel Corporation, San Francisco, succeeding H. D. Botchford, who recently resigned on account of ill health. Mr. Rains was formerly manager for the corporation at Salt Lake City, Utah.

G. H. Hutchins, who has been in active charge of all sales of coke for foundry, industrial and domestic consumption of the Semet-Solvay Co., New York, has resigned.

W. A. Riddell, president W. A. Riddell Co., Bucyrus, Ohio, maker of road and clay machinery, and president of the Frederick Iron & Steel Co. and the Frederick Engineering Co., Frederick, Md., makers of centrifugal pumps, has been elected a director of the Engineers National Bank of Cleveland.

N. McE. Sage, of the Raytheon Co., Cambridge, Mass., has been elected president of the Atlas Tack Corporation to succeed W. E. Maxson, who has resigned.

Charles A. Roberts, plant superintendent of the Gurney Heater Mfg. Co., Framingham, Mass., has resigned. He has been succeeded by M. L. Doelman, formerly with the Union Radiator Co., Johnstown, Pa.

Julian A. Pollak, vice-president Pollak Steel Co., Cincinnati, has been re-elected president of the Cincinnati River-Rail Transfer Co., which owns and operates

a terminal at Cincinnati for the transfer of freight from Ohio River barges to railroad cars or motor trucks.

Col. George G. King has been elected president of the Peters Cartridge Co., Cincinnati, manufacturer of ammunition, succeeding W. E. Keplinger, who recently resigned. Colonel King has been identified with the company since its organization and for a number of years has been works manager and a member of the board of directors.

Carl H. Casberg, for the last two years superintendent of the machine laboratory at the University of Illinois, has been made manager of the shop laboratories at the university, the appointment to be effective Feb. 1. He succeeds the late Bruce W. Benedict. Mr. Casberg was graduated from the University of Wisconsin in 1916.

Edward L. Leeds, formerly vice-president and director of the Niles-Bement-Pond Co. and vice-president of Pratt & Whitney Co., and Brent A. Tozzer, until recently New York sales manager for the Niles Tool Works Co. and the Pratt & Whitney Co., have engaged in business under the name of Leeds Tozzer & Co., Inc., and have taken offices at 75 West Street, New York. They will specialize in machinery engineering work and will represent manufacturers of heavy machinery. Both have had long experience in the machine tool industry.

Fred H. Oberschmidt has been appointed manager of the Pacific Coast district office of the Cutler-Hammer Mfg. Co., Milwaukee. His headquarters will be at 970 Folsom Street, San Francisco.

Flavel M. Woodworth and Eugene F. LaPorte, employees of the Pratt & Whitney Co., Hartford, Conn., were recently honored by the company for their long terms of service. Mr. Woodworth has completed his sixtieth year of continuous service. He started as an apprentice and has been employed in the planer department for 40 years. Mr. LaPorte, who has been with the company for 50 years, began as a messenger boy, and in later years has been a special messenger for the company.

William W. Dodge has been appointed sales representative in western New York for the C. O. Bartlett & Snow Co., Cleveland, and will have his headquarters at Warsaw, N. Y. After graduation from Cornell University he served an apprenticeship in the shops of the Dodge Mfg. Co., Mishawaka, Ind., and was subsequently associated with that company in various capacities, having been for some years vice-president and Chicago district manager. Recently he has devoted his time to the design and sale of material handling equipment.

F. X. Devlin, recently purchasing agent for the Federal Motor Truck Co., has been made district sales manager at Chicago for the H. C. Atkins Mfg. Co., St. Louis, and will have charge of the company's pipe nipple sales in northern Indiana, northern Illinois, western Michigan, Wisconsin and Minnesota.

Robert W. Bier has been placed in charge of the Chicago office of the Erie Ball Engine Co., Pittsburgh, at 1540 Monadnock Block. He is a graduate of the Carnegie Institute of Technology and has been identified with the Erie company for several years in both the sales and engineering departments.

G. S. Carrick, lately president and general manager of the Carrick Engineering Co., Chicago, has been appointed general manager of the industrial department of the American Arch Co., Inc., New York, and will have charge of matters relating to the company's furnace products. After graduation in 1909 from Purdue University, Lafayette, Ind., he served in the power plant and industrial sales departments of the Westinghouse Electric & Mfg. Co., East Pittsburgh. In 1913 he entered the combustion engineering field, engaging partic-

ularly in power plant work, later organizing the Carrick company, which specialized in the automatic control of combustion for boiler plants and furnaces.

Eugene G. Grace, president Bethlehem Steel Corporation, will be the principal speaker at the annual banquet of the Engineers Society of Western Pennsylvania at the William Penn Hotel, Pittsburgh, Monday evening, Jan. 30. His talk will be on the need of broader business training for engineers.

S. W. Utley, president American Foundrymen's Association and vice-president Detroit Steel Casting Co., was the speaker at the regular monthly meeting and dinner of the Pittsburgh Foundrymen's Association at the Fort Pitt Hotel, Pittsburgh, on Jan. 16. His subject was "Why Initiative Deserves Profit."

T. M. Girdler was elected president of the Jones & Laughlin Steel Corporation, Pittsburgh, at a meeting of the board of directors held on Jan. 12. At the same meeting W. J. Creighton was made a vice-president and director of the company, and W. C. Robinson, a director. William D. Evans and William L. Jones, Jr., were elected to the executive committee, and W. H. Dupka, who has been assistant comptroller, was made comptroller and assistant secretary. These changes are incident to the death of B. F. Jones, Jr., chairman of the board, whose place, it was said following the meeting, will probably remain vacant until the annual meeting of the corporation in April. The new president was graduated in mechanical engineering from Lehigh University, Bethlehem, Pa., in 1901, and immediately became associated with the Buffalo Forge Co., Buffalo, N. Y. Shortly afterwards he was sent to London, England, as sales engineer and assistant to that company's London representative. In 1902 he returned to this country to become identified with the Oliver Iron & Steel Corporation, Pittsburgh, remaining with that company until 1905, when he went with the Colorado Fuel & Iron Co., Pueblo, Colo. Two years later he became general superintendent of the Atlantic Steel Co., Atlanta, Ga., remaining with that company until 1914, when he joined the Jones & Laughlin company as assistant to the general superintendent of the Aliquippa works, Woodlawn, Pa. Later he was successively assistant general superintendent and general superintendent of that works and general manager of all plants and properties of the company. Two years ago he was elected vice-president in charge of operations and a director and, a year ago, was made a member of the executive committee. W. C. Robinson, the new director, is president of the National Metal Molding Co. and a director of the Mellon National Bank and the Union Trust Co., Pittsburgh. Mr. Creighton, the new vice-president, has been with the corporation since 1900 and for several years has been its comptroller.



T. M. GIRDLER

Stanley P. Rockwell, president of the Stanley P. Rockwell Co., Hartford, Conn., spoke before the Providence Engineering Society on Jan. 18, his subject being the "Rockwell Dilatometer and the Volcrit Method of Heat Treatment."

Walter C. Kimball, for two and a half years vice-president in charge of sales for the International Heater Co., Utica, N. Y., has resigned to become associated with William A. White & Sons, real estate agents, 45 Cedar Street, New York.

Arthur C. Pletz has been appointed sales manager of the Niles Tool Works Division of the Niles-Bement-Pond Co., with headquarters at Hamilton, Ohio. For nearly two years Mr. Pletz has been in charge of the miscellaneous tool department at Hamilton, and before that was general manager of the Morris Machine Tool Co., Cincinnati.

Joseph A. Janney, Jr., has purchased the interest of Joseph A. Steinmetz in the firm of Janney-Steinmetz & Co., Philadelphia, engineers. With the dissolution of the partnership the business will be conducted under the name of Joseph A. Janney, Jr.

Carl F. Dietz, president, and Robert T. Kent, general manager, of the Bridgeport Brass Co., Bridgeport, Conn., have resigned. Ralph Day, manager of the Hastings plant of the American Brass Co., Hastings-on-Hudson, N. Y., has been appointed general manager of the Bridgeport company, but a new president has not been selected. Mr. Day had been associated with the American Brass Co. for 22 years, and before going to the Hastings plant about five years ago, was in charge of the company's Waterbury, Conn., branch.

J. W. Berscheld, for the last three years superintendent of the Scott Street plant at Joliet, Ill., of the American Steel & Wire Co., has been made superintendent of both the Scott and Rockdale plants of the company. At the Rockdale works he succeeds H. R. Patterson, whose transfer to the superintendency of the Rankin and Braddock, Pa., works of the company, was mentioned in THE IRON AGE last week. Mr. Berscheld's appointment marks the final step in the consolidation of the Steel & Wire company's Joliet plants which was begun three years ago by the merging of their accounting departments.

J. Frank Rogers has resigned as manager of the gas producer division of the Wellman-Seaver-Morgan Co., Cleveland, and has been succeeded by Victor Windett, who has been engineer of that division since 1917. Mr. Rogers had been with the company since 1901.

J. G. Stromp, formerly general manager of sales for the J. E. Moss Iron Works, Wheeling, W. Va., has become associated with the Pittsburgh Screw & Bolt Corporation, Pittsburgh, and will be attached to its New York sales office.

Edward L. Ryerson, Sr., chairman of the board of Joseph T. Ryerson & Son, Inc., is critically ill at his home, 38 Banks Street, Chicago.

M. L. Mozier has temporarily withdrawn from the active direction of pig iron sales of the Hudson Valley Coke & Products Corporation, Troy, N. Y., on account of the illness of Mrs. Mozier.

E. J. Lowry, metallurgist Hickman, Williams & Co., New York, addressed the Connecticut Foundrymen's Association on the metallurgy of pig iron at Meriden, Conn., Jan. 13.

## Form Large Engineering and Construction Firm

United Engineers & Constructors, Inc., has been formed by a combination of the United Gas Improvement Contracting Co., Philadelphia; the Public Service Production Co., Newark, N. J.; Dwight P. Robinson & Co., Inc., New York, and the Day & Zimmermann Engineering & Construction Co., Philadelphia. Dwight P. Robinson will be president of the new corporation, which will have its principal office at Broad and Arch Streets, Philadelphia. The company will maintain branch offices in many cities of North and South America, and will participate in all forms of engineering and construction activity.



# Machinery Markets and News of the Works

## MARKETS MORE ACTIVE

### Agricultural Machinery and Automobile Parts Makers Buy Tools

Price Advances on Certain Lines of Machinery Have Stimulated Recent Placing of Orders

AGRICULTURAL machinery manufacturers in the Chicago district and makers of automobile parts in the Michigan-Ohio territory have been more active in machine tool markets in the past week, resulting in an increase in the volume of sales. A tractor manufacturer in central Illinois bought about \$200,000 worth of new equipment, while other farm machinery manufacturers have bought in smaller lots. The International Harvester Co. has enlarged its replacement program at its McCormick plant in Chicago and a Milwaukee road machinery company has prepared a large list of tool requirements.

The Cleveland and Detroit markets have been stimulated by the present activity among manufacturers of

automobile parts, most of the plants in that field now operating at capacity. Some business in small lots has been placed by automobile companies in Detroit.

From Cincinnati comes the report that sales dropped off in the past week, but inquiries are numerous and machine tool builders are of the opinion that sales during this quarter will attain fairly liberal proportions. The largest order reported from Cincinnati is 10 18-in. lathes bought by an Ohio wheel manufacturer.

Some of the recent ordering has resulted from price advances, buyers taking advantage of the opportunity to act upon outstanding quotations at the former prices. A Cleveland manufacturer of turret lathes reports a heavy volume of single machine orders, largely from the New York and Chicago territories, following the recent announcement of a 10 per cent price advance.

The National Machine Tool Builders' Association reports that December was the best month of 1927 for net orders. The business for the entire year was about 85 per cent of the 1926 volume. "General opinion," says the association's report, "is that 1928 will see a greater volume of business than 1927."

## New York

NEW YORK, Jan. 17.

THERE has been a fair volume of inquiry since the beginning of the month, so that prospective business is considered good. Mergenthaler Linotype Co., Brooklyn, continues as a purchaser of machine tools and equipment. In making changes from belt to motor drive in its shops the company is reported to have ordered more than \$85,000 worth of electrical equipment. Purchases of tools have thus far included six turret lathes and a number of engine lathes, and two milling machines are about to be placed. General Electric Co., Schenectady, N. Y., is reported in the market for five tools for Pittsfield and two for Schenectady.

Inquiry from railroads is confined to the list reported last week from the Delaware, Lackawanna & Western. New York Central has not been purchasing recently and is not expected to be in the market again for several weeks. The list of the Delaware, Lackawanna & Western includes the following: For East Buffalo, a 42-in. sizing shear, wheel press recording gage, and 50-ton drop table; for Utica, N. Y., motor-driven floor grinder; for Keyser Valley, Pa., an 18-in. riveting machine, rotary pump, hose dismantling machine and 30-in. engine lathe; for Scranton, Pa., motor-driven floor grinder, 50-ton bushing press, 54-in. horizontal milling machine, 50-ton hydro-pneumatic forcing press, 32-in. vertical turret lathe, two 16-in. engine lathes, 13 x 16-in. hack saw, 4-ft. radial drill, 14-in. sensitive drill, 20-in. engine lathe, band saw, flexible shaft grinder, nibbling machine, spring testing machine, 8000-lb. steam hammer, sand separator and swing frame grinder; for Kingsland, N. J., 42-in. vertical turret lathe, 10 x 36-in. universal grinder and double axle lathe; for Hoboken, N. J., slitting shear.

Recent purchases have included a used Pratt & Whitney thread milling machine and used cutter grinder by a company in Chicago; Stanley No. 2 drill by Boston & Maine Railroad; shop-worn, 6-ft. Niles universal radial drill by an iron company in Pennsylvania; two Ransom R. W. grinders by a company in Rochester; a No. 1 deep-hole drilling machine by an automobile manufacturer in Detroit, and a 16 x 60-in. Pratt & Whitney lathe by a Cleveland manufacturer. Niles Tool Works Co. recently purchased three 20 x 72-in. and two 20 x 96-in. lathes from Pratt &

Whitney Co. Sperry Gyroscope Co., Brooklyn, and Ludlow Valve Mfg. Co., Troy, N. Y., recently purchased turret lathes.

Brooklyn Union Gas Co., 176 Remsen Street, Brooklyn, N. Y., has plans for a four-story gas producer plant, 55 x 160 ft., at 396-98 Gardner Avenue, to cost \$500,000 with machinery.

John J. Dunnigan, 2382 Grand Concourse, New York, architect, has begun erection of two-story automobile service, repair and garage building on Webster Avenue, to cost about \$150,000 with equipment.

Simmons Machine Tool Co., Albany, N. Y., has acquired former plant of General Railway Signal Co., on adjoining site for expansion.

Plattsburg Power & Electric Co., Plattsburg, N. Y., has purchased hydroelectric generating plant of Peck Brothers, textile manufacturers, Shushan, N. Y., and plans expansion in that section, including transmission line construction.

C. J. Wolf, 2 Crary Street, Mount Vernon, N. Y., architect, has plans for one and two-story automobile service, repair and garage building, to cost close to \$100,000 with equipment.

Indian Refining Co., 17 State Street, New York, operating an oil refinery at Lawrenceville, Ill., with capacity of 15,000 bbl. per day, is disposing of a bond issue of \$1,600,000, a portion of proceeds to be used for expansion.

William Shary, 41 Union Square, New York, architect, will soon begin construction of six-story automobile service, repair and garage building at 310 West Thirty-ninth Street, to cost close to \$200,000 with equipment.

Board of Education, Valley Stream, N. Y., is considering installation of manual training equipment in four-story high school to cost \$250,000. Fred Wiedersum is architect for board.

United Electric Light & Power Co., 130 East Fifteenth Street, New York, has purchased entire block of property on Harlem River, adjoining its generating plant at 201st and Academy Streets, for future expansion.

Elevating and conveying machinery, power and other equipment will be installed in two-story storage and distributing plant, 115 x 202 ft., to be erected by United Grocers Co., Inc., 7981 Clifton Place, Brooklyn, at Evergreen, L. I., to cost \$160,000. Allmendinger & Schindorf, 852 Monroe Street, Brooklyn, are architects.

Mohawk-Hudson Power Corporation, Albany, N. Y., will acquire Schodack Light & Power Corporation, Castleton,

## The Crane Market

THERE is an increasing number of overhead crane inquiries in the market, but purchasing has not yet developed to any extent. Business in locomotive cranes is still quiet. The Public Service Production Co., Newark, N. J., which has been inquiring for a 120-ton overhead crane for Roseland and a 65-ton crane for West Orange, N. J., has asked for bids on a 120-ton crane for Metuchen, N. J. The 13 cranes for the West Philadelphia plant of the General Electric Co., reported placed last week, are understood to have been distributed as follows: Four 2-ton traveling wall cranes to the Box Crane & Hoist Corporation, three 10-ton electric overhead cranes to the Niles Crane Corporation, nine 5-ton underhung electric cranes to the Northern Engineering Works and one 5-ton overhead crane to the Milwaukee Electric Crane & Mfg. Corporation. At an opening of bids by the Government of Porto Rico on a 15-ton, 24-ft. span electric crane, the low bid was submitted by the Box Crane & Hoist Corporation.

Among recent purchases are:

E. L. Phillips & Co., 50 Church Street, New York, 10-ton hand power crane for Long Island Lighting Co., from New Jersey Foundry & Machine Co.

Turbine Equipment Co., 30 Church Street, New York, 3-ton, 24-ft. span hand power crane from Box Crane & Hoist Corporation.

Norfolk & Western Railway Co., Roanoke, Va., 15-ton, 78-ft. span and 10-ton, 18-ft. span, overhead electric cranes from Niles Crane Corporation.

Midland Barge Co., Pittsburgh, 40-ton electric gantry crane from Orton Crane & Shovel Co.

Well-McLain Co., Michigan City, Ind., three 5-ton and one 7½-ton electric cranes from Erie Steel Construction Co.

Carnegie Steel Co., Pittsburgh, 10-ton, 46-ft. span, magnet handling crane for its Edgar Thomson works, from Alliance Machine Co.

N. Y., and consolidate with system. Plans are under consideration for expansion in last noted district, including transmission lines.

Lexington Electric Products Co., 419 East Twenty-fourth Street, New York, manufacturer of switchboards, electric panels, etc., has acquired the two and three-story factory at 6-26 Chapel Street, Newark, and will remodel for a new plant. An additional unit will be erected to increase floor area to 75,000 sq. ft.

W. P. Katz, 2 Hudson Street, Yonkers, N. Y., architect, is completing plans for a two-story automobile service, repair and garage building, 75 x 100 ft., to cost \$200,000 with equipment.

Atlantic Cement Products Co., Hicksville, L. I., has begun erection of new plant, to cost about \$200,000 with conveying, hoisting, loading and other machinery.

Public Service Electric & Gas Co., Terminal Building, Newark, plans construction of a three-story power substation at New Brunswick, N. J., to cost close to \$90,000 with equipment.

Municipal Council, Belleville, N. J., has plans for a one-story repair shop, to cost more than \$25,000 with equipment. Paul B. West, 24 Commerce Street, Newark, is architect.

Samuel H. Kulman and James Moran, Newark, have leased space in new building at Frelinghuysen Avenue and Empire Street, totalling 115,000 sq. ft., for plant to manufacture lunch wagons and dining cars.

Dominick & Haff, Inc., and McChesney Co., both at 144 Orange Street, Newark, manufacturers of plated and silverware products, flat ware, etc., have merged with Reed & Barton Corporation, Taunton, Mass., manufacturer of kindred products. Present plants will be continued and expansion carried out.

Clinton B. Cook, Asbury Park Trust Building, Asbury Park, N. J., architect, has filed plans for a four-story automobile service, repair and garage building, 100 x 150 ft., to cost approximately \$225,000 with equipment.

Combustion Utilities Co., 60 Wall Street, New York, manufacturer of power plant and furnace equipment, etc., has awarded general contract to Austin Co., for initial building of new plant at New Brunswick, N. J., 50 x 125 ft., to cost upward of \$75,000 with equipment.

Huff Airplanes, Inc., 497 Division Street, Perth Amboy, N. J., Ira R. Crouse, treasurer, has begun foundations for a one-story unit at its proposed plant on portion of tract of Pardee Steel Corporation, 190 x 260 ft., to cost more than \$80,000 with equipment.

Hygienic Tube Co., 88 McWhorter Street, Newark, manufacturer of composition, mechanical and other tubing, has revised plans for a new plant at Avenue L and Mary Street, 100 x 100 ft., reported to cost about \$45,000 with equipment. Alfred Peter, 207 Market Street, is architect.

M. K. Frank, 15 Park Row, New York, has been inquiring for a narrow gage mine locomotive, saddle tank, steam-driven.

Gabrieleen Co., Inc., 245 Fifth Avenue, New York, has been formed to take over Gabriel Corporation and will manufacture hair waving machines and supplies. Company has factory in Newark, and arrangements have been made for purchase of materials.

Zoll-Roe Co., Inc., 150 Spring Street, New York, has been organized to manufacture tools, appliances and metal products. At present it is engaged in refinishing passenger and freight elevator cabs and dipping of handles and miscellaneous small products.

E. L. Phillips & Co., New York, have ordered from Semet-Solvay Engineering Corporation, New York, quantity of

16-in., 20-in. and 30-in. pipe and fittings with Van Stone flanges. Larger sizes of pipe will have seams electrically welded both inside and out.

Associated Machine Tool Co., 187-189 Seventh Street, Brooklyn, has changed its name to L. J. Hoy & Co. Company deals in new and second-hand machinery.

Wellman-Seaver-Morgan Co., Cleveland, has moved its New York office from 522 Fifth Avenue to 30 Church Street.

Long Island Lighting Co. will equip its plant at Bay Shore, N. Y., with Steere welded steel pipe and fittings.

## Philadelphia

PHILADELPHIA, Jan. 16.

BIDS have been asked on general contract by Pennsylvania Railroad Co., Philadelphia, for a new cold storage and refrigerating plant to cost in excess of \$150,000. Day & Zimmermann, Inc., Sixteenth and Walnut Streets, is engineer.

Tidewater Oil Sales Corporation, 11 Broadway, New York, is said to be arranging for construction of three-story storage and distributing plant, 65 x 105 ft., to cost upward of \$60,000 with equipment.

Keystone Index Card Co., 3225-27 Race Street, Philadelphia, manufacturer of office equipment, has acquired adjoining property, 50 x 100 ft. and 50 x 175 ft., for expansion. It is said that present buildings on sites will be razed and factory extension built.

Day & Zimmermann, Inc., Sixteenth and Walnut Streets, Philadelphia, engineer, is asking bids until Jan. 31 for a boiler plant, pumping station, steel water tank and tower, and miscellaneous equipment for a State cantonment and utilities at Graterford, Pa., acting for Board of Trustees, Eastern State Penitentiary of Pennsylvania.

General Gas & Electric Co., 50 Pine Street, New York, is completing plans for a steam-operated electric power house at Holland, N. J. It will be operated under direction of New Jersey Power & Light Co., Dover, N. J., an affiliated organization, and will comprise two 42,000-kw. generating units, condensers, boilers, pumping machinery and accessory equipment. Work will begin early in spring. Project will cost more than \$5,000,000, including transmission lines.

Roberts & Manders Stove Co., Eleventh Street and Washington Avenue, Philadelphia, has awarded general contract to Cameron Engineering Co., Fifteenth and Chestnut Streets, for a one-story addition to plant at Hatboro, Pa., to cost \$45,000.

Dielectric Products, Inc., Wilmington, Del., care of John F. Porter, 1303 Franklin Street, recently formed under State laws by Mr. Porter and associates with capital of \$100,000 and 10,000 shares common stock, no par value, has acquired property at Newport, near Wilmington, for a new plant to manufacture insulating greases and affiliated products used in production of high tension cables. Initial plant is reported to cost more than \$75,000. J. E. Hammond is first vice-president; R. E. Glover, secretary, and Lewis Rumford, treasurer.

Harrisburg Light & Power Co., Harrisburg, Pa., is arranging an expansion and improvement program, including additions in power plants and transmission lines, to cost more than \$1,000,000 with equipment.

Bureau of Supplies and Accounts, Navy Department, Washington, is asking bids until Jan. 24 for safety valves and spare parts for Philadelphia and Norfolk navy yards, schedule 8342.

Prest-O-Lite Co., 30 East Forty-second Street, New York, manufacturer of acetylene apparatus, subsidiary of Union



Carbide & Carbon Corporation, has acquired property at Harrisburg, Pa., for a one-story plant to cost \$27,000, for which superstructure will begin at once. An adjoining portion of site will be used for one-story factory branch, 80 x 100 ft., for Linde Air Products Co., another subsidiary, manufacturer of industrial oxygen, etc., to cost more than \$30,000. Both organizations are reported planning similar units at Allentown, Pa.

Board of Education, Altoona, Pa., has authorized purchase of property for a new West Side senior high school, for which plans will soon be drawn, to cost \$800,000. Manual training department is being considered.

## Buffalo

BUFFALO, Jan. 16.

**B**IDS have been asked on general contract by General Drop Forge Co., 1738 Elmwood Avenue, Buffalo, for one-story machine shop to cost \$50,000, with adjoining department for shipping service. Ernest McGeorge, 3030 Euclid Avenue, Cleveland, is architect and engineer.

Buffalo Cement Co., Ltd., 110 Franklin Street, Buffalo, contemplates rebuilding portion of crushing plant destroyed by fire Jan. 10, with loss close to \$75,000 including equipment.

Standard Milling Co., 49 Wall Street, New York, has plans for a new flour mill at Buffalo, to cost in excess of \$200,000 with machinery. A. E. Baxter Engineering Co., Ellicott Square, Buffalo, is architect and engineer.

Curtiss Aeroplane & Motor Co., Inc., Kail Street, Buffalo, is arranging an expansion program for its affiliated organization, Curtiss Aeroplane Export Corporation, and has disposed of stock totaling about \$500,000. C. M. Keys, president of parent company, is chairman of board of subsidiary organization; C. W. Webster, president; and J. A. B. Smith, treasurer.

Binghamton Airways, Inc., 140 State Street, Binghamton, N. Y., has been organized to manufacture and repair airplanes and aeronautical equipment. Company may erect hangar in near future. No contracts have as yet been let.

## Detroit

DETROIT, Jan. 16.

**C**ONTRACT has been let by Hupp Motor Car Corporation, 3641 East Milwaukee Avenue, Detroit, to Everett Winters, Inc., 1651 East Grand Boulevard, for one-story addition to cost about \$65,000, for metal-stamping.

Zimmerman Mfg. Co., Owosso, Mich., manufacturer of turned wood products, has acquired a local plant formerly occupied by Sorg Engine Co., and will remove and expand its works at that location. Zimmerman company has lately disposed of its factory to Michigan Rubber Co., which will establish plant for production of hard rubber specialties.

Chris Smith & Sons Boat Co., Algonac, Mich., is completing an addition for marine engine manufacturer and will begin operations soon. Plant will be devoted to eight and six-cylinder motors, of 150 and 200 hp. rating, respectively. Company is arranging production schedule of about 1700 fast boats during 1928, and will develop other divisions of works on that basis.

Grand Rapids Gas Light Co., Grand Rapids, Mich., is arranging fund of about \$300,000 for extensions and improvements in artificial gas plant and system, including additional equipment installation.

Warner Aircraft Co., 4042 West Jefferson Avenue, Detroit, is said to be planning installation of machine tools and other equipment.

New Way Motor Co., Lansing, Mich., will make extensions and improvements in plant, including re-tooling for production of a new type of gasoline engine, two-cylinder, non-vibrating. Works have heretofore been devoted to manufacture of single cylinder motors.

Linde Air Products Co., 30 East Forty-second Street, New York, manufacturer of industrial oxygen, welding apparatus, etc., has begun work on a new two-story plant, 48 x 98 ft., at Grand Rapids, Mich., to cost more than \$45,000.

Cadillac Sales & Service Co., Wayne Street, Pontiac, Mich., has plans for a two-story service, repair and garage building, to cost \$200,000 with equipment.

AC Spark Plug Co., Flint, Mich., will carry out an expansion program in spark plug and speedometer departments, utilizing space heretofore given over to tile manufacture. Company will also develop facilities for production of ammeters, oil gages, thermo gages and instrument panels for motor cars and motor boats.

Board of Education, Owosso, Mich., contemplates installation of manual training equipment in a new two-story high

school to cost \$165,000, for which plans will be drawn by William B. Ittner, 911 Locust Street, St. Louis, architect.

City Council, Fordson, Mich., has plans for a municipal power house in connection with a group of city buildings. John Kasurin, Empire Building, Detroit, is architect.

Kalamazoo Stove Co., Kalamazoo, Mich., has disposed of stock issue of about \$300,000, giving controlling interest to Keane, Higbie & Co., Buhl Building, Detroit, investment bankers, and plans are under consideration for expansion.

Hunter Hiderian Air Sea Plane Co., 263 Park Avenue East, Pontiac, Mich., has been formed to manufacture air seaplanes and parts. It is preparing to begin work on its first model and will soon be in market for aircraft motors, sheet aluminum, tubes, rods, angle irons, etc.

## New England

BOSTON, Jan. 16.

**T**HE machine tool market in this territory is very quiet. Some improvement is noted in inquiries, but for the most part these are for single items. Inquiries are in hand for heavy-duty equipment, the first received in Boston in several months, and one maker of boring mills reports the sale of two machines to a Western automobile manufacturer. General Electric Co., Pittsfield, Mass., has inquiries out on a number of machines, the business, if placed, to be handled through Schenectady. Other New England plants of the company are expected to buy considerable equipment this year.

Small tools are moving more freely than a week ago, but the market is far from active.

Plans have been completed for a three-story, 57 x 115 ft., addition for Continental Baking Co., Somerville, Mass., for which conveying and other equipment is required. Plans are private.

Equipment of the Vibro Insulator Co., Worcester, Mass., has been sold at public auction. Machinery included a Leland-Gifford four-spindle high-speed drill; two Becker No. 4B and No. 5 vertical millers; Cincinnati universal grinder. Good prices prevailed.

Cambridge Salvage & Supply Co., 91 Broadway, Cambridge, Mass., has plans for a three-story and basement manufacturing and storage plant, 65 x 100 ft. Plans are private.

Fire recently destroyed plant of Coffin Valve Co., Neponset district, Boston, including foundry and machine shop.

Worcester Wire Works, Inc., 230 Ludlow Street, Worcester, Mass., will build a two-story wire manufacturing plant, 70 x 210 ft., to cost \$30,000.

Broadway Iron Foundry Co. and Barbour Stockwell Co., Cambridge, Mass., have consolidated and gray iron equipment of Broadway company has been transferred to Barbour plant, 205 Broadway. Brass foundry and machine shop will be transferred later. R. C. Bird, president Broadway Iron Foundry Co., will be associated with merged company in an official capacity. Property of Broadway company will be sold.

Welker-Hoops Mfg. Co., Middletown, Conn., manufacturer of automobile equipment, cap pistols, etc., has taken over former local plant of Westinghouse Electric & Mfg. Co. for manufacture of new gear shift for automobiles.

Brockton Gas Light Co., Brockton, Mass., plans a one-story addition to its steam power house, to cost in excess of \$100,000 with equipment. C. H. Tenney Co., 200 Devonshire Street, Boston, is engineer. Company also plans new automobile service, repair and garage building, 125 x 125 ft., for company use, to cost approximately \$75,000. Same engineer will draw plans.

Carpenter Steel Co., Hartford, Conn., has taken out permit for one-story factory branch and distributing plant, to cost about \$30,000, for which general contract recently was let to Lawrence & Coe Construction Co., 43 Farmington Avenue. Main mill of company is at Reading, Pa.

Standard Box Co., 28 Gerrish Avenue, Chelsea, Mass., manufacturer of paper boxes and containers, has plans for a two-story addition, 100 x 142 ft., to cost about \$80,000 with machinery; Elsenberg & Feer, 46 Cornhill Street, Boston, architects.

New York Power & Light Corporation, Albany, N. Y., has purchased Ridgefield Electric Co., Ridgefield, Conn., and Washington Electric Light & Power Co., Litchfield, Conn., and will consolidate. Plans are under way for expansion, including transmission line construction.

C. V. Badger, 191 Merrimack Street, Haverhill, Mass., architect, has revised plans for a new two-story plant, 60 x 115 ft., for manufacture of acids and kindred chemical spe-

cialties, for company whose name is temporarily withheld, to cost \$60,000 with machinery.

New England Concrete Pipe Corporation, 79 Milk Street, Boston, has plans for a power house at its works at Newton, Mass., 150 x 160 ft., to cost about \$70,000 with equipment; John H. Rogers, 10 State Street, Boston, architect.

E. Ingraham Co., 392 Main Street, Bristol, Conn., manufacturer of clocks, clock movements, etc., will soon take bids for one-story addition, 25 x 160 ft., to be equipped as a press department. Max J. Unkelbach, New Britain, Conn., is architect.

Peerless Unit Ventilation Co., Inc., formerly at Long Island City, N. Y., has moved its main office and factories to 718-734 Crescent Avenue, Bridgeport, Conn. New York office is now at 369 Lexington Avenue.

Boston Gear Works Sales Co., Norfolk Downs, Mass., manufacturer of Standardized power transmission equipment, has let contract for a three-story addition to Clark & Smith, Inc., Quincy, Mass.

Eppley Laboratory, Newport, R. I., has been organized to manufacture precision instruments. Plant has been erected and some new equipment purchased.

## South Atlantic States

BALTIMORE, Jan. 16.

**B**IDS have been asked on general contract by Bethlehem Shipbuilding Corporation, Baltimore, for first unit of its one and two-story addition. Other shops will be built later. Entire project will cost close to \$1,000,000 with machinery.

Maryland Paper Mills Co., 5 Hopkins Place, Baltimore, Robert A. Wilson, secretary and treasurer, recently organized, has engaged R. Munson, 609 Southern Building, Washington, engineer, to prepare plans for new units at Glen Burnie, Md., comprising pulp mill to cost about \$150,000, and paper-making unit, to cost upward of \$250,000 with equipment. Work will soon begin on first unit for paper-bag manufacture, to cost approximately \$80,000 with equipment. William W. Ormsbee is president.

J. Glenn Beall, Irving Prichard, Frostburg, Md., and associates, are completing plans for new plant at Mount Savage, Md., for production of large diameter, vitrified sewer pipe, drain tile, etc., reported to cost more than \$40,000. Contract for raw material has been made with Union Mining Co., Mount Savage.

Constructing Quartermaster, Fort Benning, Ga., is asking bids until Feb. 3 for construction of 1,000,000-gal. capacity steel standpipe, 50 ft. diameter, and 70 ft. high, with valves, blow-off and mechanical accessories, circular 1.

Carolina Power & Light Co., Raleigh, N. C., has purchased South Carolina Power & Light Co., Kingstree, S. C., and will consolidate with its organization. Expansion is planned in last-noted district, including transmission line construction.

City Commission, Charlotte, N. C., is completing plans for a one-story municipal automobile service; repair and garage building, 115 x 310 ft., to cost about \$90,000 with equipment. Robert L. Brown, commissioner of public works, in charge.

Southeast Georgia Power Co., Alma, Ga., recently organized, has acquired local power plant and contemplates extensions and betterments, including installation of additional machinery.

Bureau of Supplies and Accounts, Navy Department, Washington, is asking bids until Jan. 24 for chain hoists for Eastern and Western yards, schedule 8329; also for machine screws, nuts, etc., for Norfolk Navy Yard, schedule 8359; and 10 arc welding sets for Mare Island Yard, schedule 8328.

City Council, Dillon, S. C., plans installation of pumping machinery and accessory equipment for municipal water-works expansion.

Celluloid Corporation, Amcelle, Cumberland, Md., subsidiary of Celanese Corporation, is completing plans for new plant, 300 x 1000 ft., for production of cellulose acetate, to cost more than \$1,500,000 with equipment. Company recently acquired control of Celluloid Co., with plant at Newark, N. J.

Ovens, power equipment, conveying and other machinery will be installed in plant to be erected at Norfolk, Va., by Gardner Bakeries, Inc., 219 Cumberland Street, to cost more than \$175,000. Company is operated by General Baking Co., 342 Madison Avenue, New York.

Georgia Power Co., Atlanta, Ga., is completing an expansion program to cost more than \$12,755,000, including power plants, transmission lines, substation equipment and other work. New power substation will be built at Atlanta, and similar plant at Marietta, enlarged. New gas-generating

equipment and vertical retorts will be installed at Atlanta gas works.

Citizens' Crystal Ice Co., Inc., Roanoke, Va., is considering equipment for pulverizing and burning powdered fuel, and is desirous of getting in touch with manufacturers.

J. L. Gray, Gastonia, N. C., is planning purchase of automatic machines for finishing cast gears of steel, brass and other metal.

Ohio Brass Co., Mansfield, Ohio, has opened an office at 721 Healy Building, Atlanta, Ga., as headquarters for its sales representatives in that section.

Hampton Roads Steel Co., 1086 West Thirty-fifth Street, Norfolk, Va., has been organized to operate warehouse and fabricate structural steel and reinforcing bars and deal in metal lath, steel joists and other steel products.

Rome Electric Range Co., Rome, Ga., has been organized to manufacture electric ranges. Company has plant on North Second Avenue, and will begin manufacture immediately.

## St. Louis

ST. LOUIS, Jan. 16.

**O**FFICIALS of B. F. Mahoney Aircraft Co., San Diego, Cal., are organizing a company under Missouri laws, with capital of \$500,000, to construct and operate a new plant for production of Ryan airplanes at Bridgeton, near St. Louis, one and two-stories, to cost about \$60,000 with equipment. It is proposed to remove San Diego business to new location.

Board of Education, Ada, Okla., is considering installation of manual training equipment in two-story high school, to cost \$200,000, for which bids will soon be received on general contract. Albert S. Ross, 116 Main Street, is architect.

Atchison, Topeka & Santa Fe Railway Co., Topeka, Kan., has plans for one-story machine shop at its works at Guthrie, Okla., to cost upward of \$40,000 with equipment. H. W. Wagner, Topeka, is chief engineer.

Standard Brass Mfg. Co., Thirteenth and Chestnut Streets, Kansas City, Mo., will proceed with erection of a one-story foundry and machine shop, 100 x 130 ft., to cost more than \$50,000 with equipment.

Board of Education, Kearney, Neb., has plans for one-story addition to its manual training school to cost about \$35,000. H. M. McClure, Kearney, is architect.

Willard Storage Battery Co., M. E. Smith Building, Omaha, Neb., has awarded general contract to A. C. Busk Construction Co., 520 North Fifty-first Street, for one-story factory branch and service works to cost \$30,000. Headquarters at St. Clair Avenue and East 131st Street, Cleveland.

Oklahoma Gas & Electric Co., Oklahoma City, Okla., is arranging an expansion and improvement program, including installation of third generating unit at Horseshoe Lake power plant, to develop capacity of 87,500 hp., extensions in transmission lines, and installation of equipment in Broadway substation to double present output.

Union Wire Rope Co., Kansas City, Mo., has disposed of its rolling mill to Consolidated Rolling Mill Co., Mexico City, Mexico, which will remove equipment to last noted city.

Arkansas Power & Light Co., Little Rock, Ark., plans extensions and improvements in Pine Bluff, Ark., district, including transmission line construction and enlargements in Woodward and Dixie power substations, to cost \$400,000.

Clark-McWilliams Co., Clarksville, Ark., is said to be planning to rebuild tippie at its Igo mine recently destroyed by fire, with loss at \$40,000 including equipment.

J. A. Werme Iron Works, 1426 West Main Street, Oklahoma City, Okla., has plans for one-story addition, 90 x 300 ft.

Choctaw Culvert & Machinery Co., Memphis, Tenn., is considering erection of new plant at Pine Bluff, Ark., for manufacture of metal culverts and affiliated products, to cost close to \$35,000 with equipment.

Kansas Power & Light Co., Atchison, Kan., will make extensions and improvements in ice-manufacturing plant, with installation of additional machinery to cost \$70,000.

Universal Traffic Control Co., Oklahoma City, Okla., has removed its factory and general offices to St. Louis, latter to be maintained in Title Guaranty Building. It makes automatic signals for directing street traffic.

Bell-Davis Machinery Manufacturers, Inc., Pleasant Hill, Mo., has been formed to make shingle mill attachments for standard make saw rigs; Bell-Davis saw rigs; and its collapsible anchors. Company is assembling products at present, but expects to erect factory in spring. It is in market for steel wheels for trucks carrying portable rigs and also gears and steel frame materials.



## Cleveland

CLEVELAND, Jan. 16.

**M**ACHINE tool sales and inquiries continue fairly good, although business is confined largely to single machines. The market has been stimulated by present activity of manufacturers of automobile parts. Most of the plants in this field are now operating at capacity. Some business in small lots has come from automobile companies in Detroit territory, which bought very little machinery the last months of 1927. An order for several drilling machines was placed the past week by a Cleveland screw manufacturer. A local builder of turret lathes reports a heavy volume of single machine orders, mostly from New York and Chicago territories. This business has resulted from quotations made before the recent price advance. No inquiry is coming from railroads in this territory.

Valve Bag Co., Toledo, Ohio, manufacturer of paper valve bags, bag-filling machines, etc., has arranged for preferred stock issue of \$1,500,000, a portion of fund to be used for expansion. Company operates plants at Toledo, Oakmont, Pa., and Windsor, Ont. Carl G. Hartman is vice-president and general manager.

East Ohio Gas Co., 1405 East Sixth Street, Cleveland, has plans for a one-story and basement repair works at Dennison, Ohio, to cost about \$27,000 with machinery. C. J. Marr, 139 North Broadway, New Philadelphia, Ohio, is architect.

Northern Ohio Produce Co., 806 Broadway, Cleveland, C. Haas, president, plans installation of a cold storage and refrigerating plant in its produce terminal, to cost upward of \$2,500,000 with equipment. Wilbur Watson & Associates, 4614 Prospect Street, are architects and engineers.

Ohio Public Service Co., Elyria, Ohio, will take bids in spring for a one-story equipment storage and distributing plant, with repair facilities, to cost close to \$80,000 with equipment. R. S. Silsbee, Elyria Savings & Trust Building, is architect.

Department of Public Service, Elyria, Ohio, James A. Hewitt, director, plans installation of an electric power plant, two stories, 32 x 42 ft., with electrically-operated pumping units in connection with a sewerage disposal works. Entire project will cost more than \$750,000. George B. Gascoigne, Leader Building, Cleveland, is engineer.

Board of Education, Cadiz, Ohio, plans installation of manual training equipment in high school, for which bids have been asked on general contract, to cost \$250,000. C. W. Bates, 77 Twelfth Street, Wheeling, W. Va., is architect.

## Pittsburgh

PITTSBURGH, Jan. 16.

**I**NQUIRY for machine tools the first two weeks of the new year have been more numerous than sales, only a few small orders having been placed since the first of the month. So many inquiries and requests for prices for estimating purposes are out that it is believed considerable business will develop before spring. There are 11 or 12 items in the Westinghouse Electric & Mfg. Co.'s quarterly list which remain to be placed. In heavier lines is the wide strip mill to be installed by Wheeling Steel Corporation, and announcement is expected shortly of the closing of three seamless pipe mill units in Pittsburgh district mills.

General contract has been let by Fort Pitt Steel Casting Co., McKeesport, Pa., to Austin Co., for a one-story foundry addition, 60 x 200 ft.

Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has purchased 80 acres in Wilkins Township, and is reported planning expansion in that section.

Ready Mixed Concrete Co., South Twenty-second Street, Pittsburgh, has awarded general contract to Hughes-Foulkrod Co., Stevenson Foster Building, for new four-story plant, to cost close to \$50,000 with equipment.

Board of Education, Glassport, Pa., plans installation of manual training equipment in two-story high school, for which bids are being taken on general contract, to cost \$200,000. H. C. Clepper, Century Building, Pittsburgh, is architect.

Union Carbide & Carbon Corporation, 30 East Forty-second Street, New York, operating Carbide & Carbon Chemicals Corporation, South Charleston, W. Va., is said to be planning expansion program at last-noted plant, to cost more

than \$5,000,000, including construction of new works on Blaine's Island, where property was secured several months ago.

Pittsburgh Knife & Forge Co., Coraopolis, Pa., has changed its name to Pittsburgh Forgings Co.

Columbia Steel & Tube Corporation, 233 Broadway, New York, is completing new pipe works in Stanton Park district, Steubenville, Ohio. Building will have 22,000 sq. ft. of floor space and will be used for cutting and other mechanical operations, storage and distributing service. Equipment has been purchased and pipe and tubing will be secured under contract from Wheeling Steel Corporation, Wheeling, W. Va.

## Chicago

CHICAGO, Jan. 16.

**S**ALES of machine tools are more numerous with agricultural machinery manufacturers the principal buyers. A tractor manufacturer in central Illinois has placed \$200,000 worth of orders and some requirements are still to be met. The International Harvester Co., principally at its McCormick plant in Chicago, has enlarged its replacement program. Another large industrial list has been prepared by a road machinery manufacturer at Milwaukee. Stephens-Adamson Mfg. Co., Aurora, Ill., has purchased a number of machine tools. Orders and inquiry from railroads are dull. The St. Paul is asking for prices on a micro-grinder and a heavy-duty veneer press.

Over 400 surplus machine tools are being offered for sale by the Kelly-Springfield Truck & Bus Co., Springfield, Ohio, adding a further burden to a market already well supplied with used tools.

Price advances of 10 per cent are announced on two lines of screw machines and turret lathes.

Plant of Central Foundry Co., Marshalltown, Iowa, was destroyed by fire Jan. 2 with estimated loss of \$200,000.

Business of William L. Procnier, 18 South Clinton Street, Chicago, manufacturer of safety tapping chucks and attachments, has been incorporated under title of Procnier Safety Chuck Co., and will continue manufacture of tapping devices, quick change chucks and stud setting tools.

Michael Tauber & Co., 317 South Market Street, Chicago, has removed to 411-423 South Market Street.

Murray Iron Works Co., engineer, founder and boiler-maker, Burlington, Iowa, has purchased turbine business of Standard Turbine Corporation, Scio, N. Y., and has removed equipment to Burlington, where turbines will be manufactured in future.

Bids will soon be asked by Reiter Co., Elgin, Ill., manufacturer of water softening and purifying equipment, for a two-story addition, to cost about \$50,000 with machinery.

Manufacturers' Brass Foundry Co., Chicago, recently organized, has leased a one-story building, 55 x 100 ft., at 2721-23 Poplar Avenue, for establishment of a plant.

Galesburg Coulter-Disc Co., Galesburg, Ill., manufacturer of shovels, sheet steel products, disk blades for agricultural equipment, etc., has arranged for sale of common stock issue to total \$2,375,000, portion of fund to be used for expansion.

Goldberg & Cohen, Inc., 2139 Ogden Avenue, Chicago, manufacturer of automobile bodies, has plans for a one-story addition, 75 x 100 ft., to cost close to \$40,000 with equipment.

J. I. Case Threshing Machine Co., 102 Eighth Street, Des Moines, Iowa, has plans for a three-story addition, to cost \$40,000. C. V. Johnson, Commonwealth Building, is architect. Headquarters are at Racine, Wis.

Fisher Governor Co., South First Avenue, Marshalltown, Iowa, manufacturer of engine governors, will soon begin erection of a one-story addition, to cost close to \$45,000 with equipment; Harry Reimer, Kibbey Building, architect.

Richardson Rod & Reel Co., 536 Lake Shore Drive, Chicago, manufacturer of steel fishing rods, tackle, etc., is completing plans for a two-story factory, 62 x 120 ft., to cost close to \$50,000 with equipment. Van Gunten & Van Gunten, 26 East Huron Street, are architects.

Great Northern Utilities Co., Shelby, Mont., has plans for one-story ice-manufacturing and cold storage plant, to cost about \$45,000 with equipment.

Century Brass Works, Inc., 518 Fifth Avenue South, Minneapolis, Minn., has work under way on a one-story addition, to cost \$50,000 with equipment. General contract recently was let to Splady & Haagensohn, 609 Marquette Avenue.

Grigsby-Grunow-Hinds Co., 4534 Armitage Avenue, Chicago, manufacturer of radio equipment, has leased plant of Yellow Truck & Coach Mfg. Co., totaling 260,000 sq. ft. floor space, for establishment of a new plant. Yellow Truck company is completing erection of new works at Pontiac, Mich., and will remove to that point early in March, when leasing company will take possession.

## Indiana

INDIANAPOLIS, Jan. 16.

**P**LANs are under consideration by Union Fiber Co., Winona, Minn., for new fiberboard mill at Wabash, Ind., one story, 50 x 100 ft., to cost about \$45,000 with equipment.

G. I. Sellers & Sons Co., Elwood, Ind., manufacturer of kitchen cabinets, etc., has arranged for a preferred stock issue of \$500,000, portion of fund to be used for expansion.

Van Camp Packing Co., 2002 South East Street, Indianapolis, is said to have acquired control of Richland Cotton Oil Co., Richland, Ga., and will continue operations as subsidiary. Plans are under advisement for expansion, including facilities for larger output at Richland.

Cartmen, Burcaw & Moore, Inc., 540 North Meridian Street, Indianapolis, contractor, has filed plans for three-story and basement automobile service, repair and garage building, 90 x 140 ft., to cost \$150,000.

Hygrade Lamp Co., Salem, Mass., manufacturer of incandescent lamps, has purchased Triumph Lamp Works, Indianapolis, and will take immediate possession. It is purposed to discontinue production at acquired plant and machinery will be dismantled and removed to Salem, where operations will be concentrated and plant expanded.

Noblitt-Sparks Industries, Inc., Indianapolis, has been formed to take over and succeed to Indianapolis Pump & Tube Co., 603 East Washington Street, with branch plants at Greenwood, Columbus and Seymour, Ind., manufacturer of pumps, tubing, automobile heaters, coaster wagons, etc. Operations will be extended. Noblitt is president; and Frank H. Sparks, secretary-treasurer.

L. Harry Warriner, 673 Broadway, Gary, Ind., architect, has plans for a three-story automobile service, repair and garage building, to cost close to \$100,000 with equipment.

City Council, Anderson, Ind., is reported having plans for extensions and improvements in municipal light and power house, including establishment of auxiliary station for service in South Anderson, to cost more than \$200,000 with equipment.

Interstate Public Service Co., Goshen, Ind., has concluded arrangements for purchase of Midway Electric Co., Shipshewanna, Ind., and will consolidate with its organization. Plans are under way for expansion in latter district, with installation of additional equipment and transmission line construction.

Oakes-Swenson Co., 1479 East Nineteenth Street, Indianapolis, has been formed to manufacture metal stampings, including drawn work, and engage in heat treating. It will also design and make dies. Factory and equipment have been purchased.

Harrison Steel Castings Co., Attica, Ind., has been formed to take over assets and business of National Car Coupler Co., Attica, and will continue manufacture of miscellaneous steel castings, Hinson emergency knuckles and National couplers. J. W. Harrison is president.

Delaware Brass & Aluminum Co., Muncie, Ind., has changed its name to Beckett Bronze Co. It manufactures screw machine products.

## Gulf States

BIRMINGHAM, Jan. 16.

**P**LANs are under way by Missouri-Kansas-Texas Railroad Co., Dallas, Tex., for extensions and improvements in its shops at Waco, Tex., to cost \$50,000 with equipment; Albert T. Clifton, Waco, managing director, in charge.

Texas Central Power Co., Frost Building, San Antonio, Tex., is said to be contemplating a new cold storage and refrigerating plant at Raymond, Tex., to cost approximately \$90,000 with machinery.

Clarence W. King, Shreveport, La., architect, has plans for a three-story automobile service, repair and garage building, 115 x 150 ft., to cost about \$100,000 with equipment. It will be occupied under lease by S. & L. Service & Storage Co., 200 Edwards Street, Edward R. Lowe, manager.

Gulf States Utilities Co., Beaumont, Tex., has arranged for preferred stock issue of 30,000 shares, a portion of proceeds to be used for extensions and improvements. Company has work under way on an addition to its Neches power plant to increase capacity by 47,000 hp.; extensions will be

made in transmission lines for connection with system of Houston Lighting & Power Co., Houston, Tex.

Wichita Falls Foundry & Machine Co., Barwise Street, Wichita Falls, Tex., is completing plans for one-story addition to its machine shop, 30 x 80 ft., and will install new equipment.

South San Antonio Ice Mfg. Co., San Antonio, Tex., is planning erection of one-story plant to cost \$60,000.

R. B. George Machinery Co., Dallas, Tex., will erect a new one-story plant to cost close to \$40,000 with equipment. J. A. Pitzinger, Dallas, is architect and engineer.

West Texas Utilities Co., Dallas, operated by Central & South West Utilities Co., Allen Building, is completing plans for one-story steam-operated electric generating station at Lake Pauline, near Quanah, Tex., with initial capacity of 15,000 kw. and ultimate output of 45,000 kw. Four transmission lines will be built and a power substation and switching plant. Entire project will cost more than \$3,000,000.

United Public Service Co., 100 West Monroe Street, Chicago, has purchased Southern Ice & Fuel Co., South Royal Street; City Ice Co., and ice plant of Weinacker Ice & Fuel Co., all at Mobile, Ala. Plans are under advisement for extensions and improvements and installation of additional equipment. George E. Wells, St. Louis, is consulting engineer.

Board of Levee Commissioners, Yazoo-Mississippi Delta, Clarksdale, Miss., J. W. Cutrer, president, is asking bids until Feb. 1 for a drainage pumping plant, including both oil engine-driven and electrically operated equipment, oil engines of full Diesel type, vertical construction; synchronous electric motors; pumping units to have capacity of 50,000 gal. per min. Work to include motor-generator set, vacuum pump, electric switchboard, oil tanks, and auxiliary equipment. W. L. Head is chief engineer.

Houston Lighting & Power Co., Houston, Tex., is planning an expansion and improvement program to cost more than \$5,000,000, including enlargements in Deepwater generating plant and installation of equipment to cost about \$2,500,000; new power substations and extensions in present stations, \$500,000; transmission lines, \$200,000; distributing lines, \$355,000; stores, shops and other mechanical buildings, \$410,000; substation feeders, \$400,000, and miscellaneous work.

Dock Commissioners, New Court House, New Orleans, have filed plans for a one-story equipment storage and distributing plant, with shop and repair facilities, to cost more than \$100,000 with machinery.

Town Council, Lake Placid, Fla., is asking bids until Jan. 25 for equipment for a municipal waterworks, including pumping apparatus, and elevated steel tank and tower with capacity of 100,000 gal., including valves, fittings, etc. Bishop Engineering Co., Orlando, Fla., is engineer.

Sinclair Pipe Line Co., Sinclair Building, Tulsa, Okla., is said to be planning installation of pipe line, with booster stations, etc., from Mexia, Tex., oilfields to Healdton, Tex., with increase in present main trunk line in Mexia district, to cost more than \$1,500,000.

## Milwaukee

MILWAUKEE, Jan. 16.

**M**ODERATE activity is reported in the machine-tool market, with improvement generally noted. Prospects are more promising, and there is a substantial increase in inquiry. The automotive industries as yet are providing only a small volume, but many companies are asking for prices and delivery specifications on prospective needs, and some of this business is expected to be placed before the close of the month. Demand is better than in the October-December period and averaging at least as well as in January, 1927.

Maynard Electric Steel Casting Co., Milwaukee, has increased its capitalization from \$210,000 to \$500,000 in contemplation of enlargement of its plant at Kilbourn Road and Chicago & Northwestern tracks. Details have not been definitely determined, but it is stated that present capacity of 1000 tons a month will be approximately doubled.

City of DePere, Wis., closes bids Jan. 27 on one 4-in. single stage centrifugal pump of 500 gal. per min. capacity, direct connected to one S5 4-cylinder Continental commercial engine with power take-off, clutch and pulley for belt driving compressor. M. A. Maes is city clerk.

Manitowoc Portland Cement Co., Manitowoc, Wis., has engaged Manitowoc Shipbuilding Corporation to design and erect an extension to its main building, to cost about \$500,000 with equipment; work to begin at once.

Great Northern Railway Co., St. Paul, Minn., is taking bids for construction of 240 additional concrete tanks, 110 ft.



high and 13 ft. diameter, at its grain elevator in Superior, Wis. Workhouse also will be enlarged and additional machinery installed to handle enlarged storage capacity. Project calls for an investment of upward of \$800,000.

Common Council, Stoughton, Wis., has authorized board of public works to obtain estimates on modern machinery and equipment for municipal light and power plant. A complete replacement is contemplated at a probable cost of \$40,000 or more. Edgar Norman is city clerk.

F. C. Steiner, County highway commission, Oshkosh, Wis., closes bids Jan. 24 for furnishing a portable stone crushing plant with a capacity of 300 yd. in 10 hr., and bin, screen, track and cars, conveyors, etc.

Max P. Janisch, vice-president and general manager Special Stamping & Mfg. Co., 1919 St. Paul Avenue, Milwaukee, is principal incorporator of Steelstamp Corporation, Milwaukee, which has organized to manufacture stampings, dies, etc. John Schwan and B. B. Janisch are other principals. Plans have not yet been made known.

McCusker-Foulkes Co., 235 Cambridge Avenue, Milwaukee, has contracted for erection of a repair and service shop addition, 50 x 125 ft., to its automotive sales and service building. Architect is Verner H. Esser, 82 East Wisconsin Avenue, local.

Board of Regents, University of Wisconsin, Madison, has released a fund of \$10,000 for preparation of plans for new mechanical engineering building. Arthur Peabody is State architect. M. E. McCaffrey is secretary of board.

Common Council, Rhinelander, Wis., has engaged Burns & McDonald, consulting engineers, Kansas City, Mo., to design and supervise construction and equipment of a municipal filtration plant costing about \$90,000. A referendum on a bond issue in this sum will be held in April.

## Cincinnati

CINCINNATI, Jan. 16.

**M**ACHINE tool orders dropped off the past week with result that business the first half of January was less than that in the early part of December. Inquiries, however, are numerous and it is believed that sales in the first quarter of 1928 will attain fairly liberal proportions. Increased buying of equipment by companies in Detroit district is noted and prospective bookings from that source are the largest in several months. A wheel manufacturing company is reported to have bought 10 18-in. lathes from a Sidney, Ohio, builder. With few exceptions, local manufacturers state that customers have taken only one or two machines each. A few scattered orders have been received from European countries, but in the aggregate they are not of large volume.

Crosley Radio Corporation, Colerain Avenue and Sassafras Street, Cincinnati, has begun manufacture of a portable, hand-operated refrigerating unit to be known as Icyball. New branch of business will not interrupt or interfere with manufacture of radio receiving sets, company's main product.

Following recent acquisition of John J. Bruce Foundry Co., Colerain Avenue, Cincinnati, by Shepard Elevator Co., with plant on adjoining site devoted to ball bearing elevator manufacture, purchasing company has arranged for continuance of operations at foundry and will carry out an expansion program. Considerable portion of production will be given over to elevator castings for Shepard company.

Tietig & Lee, Merchants' Building, West Sixth Street, Cincinnati, architects, have plans for a new eight-story and basement automobile service, repair and garage building, to cost close to \$500,000 with equipment.

Steel Products Engineering Co., Springfield, Ohio, has plans for a one-story addition, to cost in excess of \$35,000 with equipment.

Volunteer Portland Cement Co., Knoxville, Tenn., is disposing of a bond issue of \$600,000, a portion of proceeds to be used for expansion.

Tennessee Electric Power Co., Chattanooga, Tenn., is arranging an expansion and improvement program, including power plants and transmission lines, to cost approximately \$5,000,000.

Mead Pulp & Paper Co., Chillicothe, Ohio, is reported planning an early call for bids for a new mill at Sylva, N. C., to cost more than \$750,000 with equipment.

Everwear Mfg. Co., Springfield, Ohio, manufacturer of swings and playground equipment, is said to have plans for a one-story addition, 50 x 50 ft., to cost close to \$30,000 with equipment.

Kentucky Chemical Co., 410 East Tenth Street, Covington, Ky., is said to be planning a new one-story plant at Brighton, near Cincinnati, to cost more than \$50,000 with equipment.

Board of Trustees, Betelle Memorial Institute, 186 East Broad Street, Columbus, Ohio, plans installation of a machine shop and other manual training departments in a new three-story building, to cost more than \$200,000. O. C. Darst, 150 East Broad Street, is architect.

Ohio Brass & Copper Co., 222 Post Square, Cincinnati, has been acquired by Chase Brass & Copper Co., Waterbury, Conn., distributor of brass and copper products of Chase Companies, Inc., Waterbury. Business will be continued in same location in Cincinnati under management of Henry E. Heitz, president of Ohio company, and will be known as Cincinnati branch of Chase Brass & Copper Co. Complete stock of Chase products will be carried.

## Pacific Coast

SAN FRANCISCO, Jan. 11.

**A**N expansion and betterment program is being arranged by Certaineed Products Co., Richmond, Cal., manufacturer of roofing, etc., to cost close to \$100,000, including new buildings and equipment. Ralph Bergen is plant manager. Headquarters are at 100 East Forty-second Street, New York.

A-G Mfg. Co., Los Angeles, manufacturer of electrical equipment and appliances, has awarded general contract to William P. Nell Co., Inc., 4814 Loma Vista Street, for a new one-story plant, 90 x 135 ft., to cost about \$40,000 with equipment. Headquarters are at 303 West Hudson Street, Seattle.

Municipal Power and Light Bureau, South Broadway, Los Angeles, will proceed with construction of steam-operated electric power plant at San Pedro Harbor, for stand-by service, to cost upward of \$500,000 with equipment. E. F. Scattergood is chief engineer.

Mesick & Mahy Mfg. Co., 1431 South Wall Street, Los Angeles, manufacturer of plated ware, has filed plans for a three-story addition, to cost about \$45,000 with equipment.

Grant Oil Tool Co., Los Angeles, manufacturer of oil-drilling equipment, is completing plans for a one-story factory, 48 x 170 ft., to cost about \$35,000 with equipment. H. M. Banfield, Bryson Building, is architect.

Arizona Edison Co., Globe, Ariz., is disposing of bond issue of \$1,700,000, portion of proceeds to be used for extensions and improvements, including transmission line construction, and acquisition of other properties.

Priest Rapids Ice & Cold Storage Co., White Bluffs, Wash., is considering erection of an addition to cold storage and refrigerating plant, to cost close to \$30,000. Work will begin in spring.

Allis-Chalmers Mfg. Co., Milwaukee, has secured property at First Avenue South and Atlantic Street, Seattle, as site for a three-story factory branch and distributing plant, 60 x 150 ft., to cost approximately \$100,000 with equipment. Work will begin in spring. Local offices at 115 Jackson Street, Rex T. Stafford, Seattle manager.

San Diego Consolidated Gas & Electric Co., San Diego, Cal., has secured permission to issue common stock in amount of \$2,000,000, portion of fund to be used for extensions and improvements.

Texas-Louisiana Power Co., Fort Worth, Tex., is reported planning a new steam-operated electric power house and ice-manufacturing plant in vicinity of Duncan, Ariz., to cost more than \$100,000.

Peck & Hills Furniture Co., 800 North Spring Street, Los Angeles, is considering erection of new seven-story factory branch and distributing plant, 120 x 240 ft., near Denny Way, Seattle, to cost approximately \$500,000 with machinery.

Engineering, Research & Equipment Co., 655 Roosevelt Building, Los Angeles, has been organized to do general engineering research business and manufacture equipment for oil refining and gasoline extraction. Equipment contracts have been made.

Austin-Western Road Machinery Co., Chicago, has opened branch office at 354 Belmont Street, Portland, Ore., in charge of F. B. McBath. It also expects to establish sub-branches at Seattle and Spokane, Wash.

## Canada

TORONTO, Jan. 16.

**M**ACHINE tool sales on replacement account are increasing, but for the most part are in units of one or two. Inquiries are somewhat better. The railroads have recently purchased some tools, and more extensive buying is looked for within a few weeks.

Copies of tender forms and specifications from D. H. Ross, trade commissioner, Melbourne, Australia, for ma-

chinery required by Supply and Tender Board of South Australia, Adelaide, for railroad shops of the State, are available at Department of Trade and Commerce, Ottawa, Canada. List includes one 10-in. combination turret lathe with electrical equipment; one vertical turret lathe and thread-cutting attachments with electrical equipment; one precision facing, boring and milling machine; one draw-stroke shaping machine with electrical equipment; one double-head centering machine with electrical equipment. Tenders close March 21. Last available mail leaves San Francisco Feb. 21, and is due at Adelaide March 19.

Ratepayers of Wheatley, Ont., have authorized expenditure of \$84,000 for construction of waterworks plant and system. A. W. Connor & Co., Metropolitan Building, Toronto, are engineers.

P. McConnell, Pitt Street West, Windsor, Ont., will build a machine shop, 60 x 80 ft., at a cost of \$10,000.

E. G. M. Cape & Co., 10 Cathcart Street, Montreal, have been awarded general contract for construction of a one-story building, 135 x 150 ft., for Northern Electric Co., 121 Shearer Street, to cost \$70,000.

C. H. Taylor, 193 King Street East, Toronto, will build two machine shop additions, one one-story, 30 x 34 ft., and the other two stories, 12 x 30 ft. A. Switzer, 62 Melbourne Avenue, Toronto, has general contract. Equipment will be purchased.

Preston Electric Porcelain Co., Centre Street, Preston, Ont., will start work immediately on erection of a one-story factory, 121 x 360 ft., to cost \$100,000. H. G. Duerr, 1010 Lumsden Building, Toronto, is architect.

Bids will be received until Jan. 25 by executive committee, City Hall, Montreal, J. Etienne Gauthier, city clerk, for one 30 m. g. d. electric pump. Specifications at office of Montreal Water Board, 259 Joseph Street, Verdun, Que.

Nova Scotia Tramways & Power Co., Halifax, N. S., is completing arrangements for erection of an addition to its coking plant.

Plant of Hastings Paper Mills Ltd., Thurlow Township, Ont., was recently destroyed by fire with loss of \$100,000.

#### Western Canada

Plant of Alberta Wood Preserving Co., Calgary, Alta., was recently destroyed by fire with loss of \$200,000.

Bartholomew, Montgomery & Co., Standard Bank Building, Vancouver, B. C., have been awarded general contract for construction of a hydroelectric power plant at Cambore Creek, near Revelstoke, B. C., for Teddy Glacier Mines, Ltd. Building will be one and one-half stories, 40 x 65 ft. and

cost about \$50,000. Contract includes erection of power house and dam. F. J. Bartholomew, 510 Hastings Street, Vancouver, is architect.

## Foreign

**B**IDS are being asked by Victorian Government Railways, Melbourne, Australia, until Feb. 22, for one electric butt welding machine, complete with all accessories.

Colonial Government, Nassau, Bahama Islands, has authorized fund of about \$160,000 for extensions and improvements in local electric light and power plant, including new machinery. Information at office of Bureau of Foreign and Domestic Commerce, Washington, reference Bahamas No. 264689; also, at American Consulate, Nassau, M. E. Gyr, consul.

Amvorg Trading Corporation, 165 Broadway, New York, official buying agency for Soviet Russian Government, will place orders soon for railroad construction machinery and equipment for Turkestan-Siberian Railway line, amounting to about \$1,000,000. A railroad delegation has arrived in United States to select equipment, headed by A. A. Lazarevsky, chief engineer, new lines department, Soviet Commissariat for Transportation; L. M. Perlman, assistant chief engineer; and S. M. Ivanov, vice-president, Turkestan-Siberian Railway.

Mexican Light & Power Co., Mexico City, Mexico, is arranging an expansion program to cost about \$7,000,000, including rebuilding several generating stations, transmission and distributing lines, and installation of new machinery. Present gross capacity of 195,000 hp. will be considerably increased.

Two steel companies in Czechoslovakia are arranging for joint construction of a new rolling mill at Karlshutte, primarily for production of fine sheet steel, and will begin work soon. Information at office of Bureau of Foreign and Domestic Commerce, Washington, reference Czechoslovakia No. 60119; also, at American Consulate, Prague, Czechoslovakia, K. L. Rankin, assistant trade commissioner.

Bids will be received by New Zealand Government Railways, Wellington, until April 21, for machine tools, including one 13-in. combination lathe, two capstan lathes, six vertical medium drilling machines, four vertical drilling machines, one plate edge planing machine, two die-sinking machines, three crank shaping machines, two locomotive wheel balancing machines, one slotting machine, two nut-tapping machines, one hydraulic riveter, four electric welding sets, 30 belt-driven spring power hammers, 11 pneumatic power hammers, two sand slinger molding machines, and two electric lifting magnets.

## NEW TRADE PUBLICATIONS

**Industrial Signal Systems.**—Hansen Mfg. Co., Princeton, Ind. Catalog 8, describing in detail the various types of signal systems and timing devices for use in maintaining punctuality and discipline economy in industrial plants and school buildings.

**Fire Fighting Equipment.**—Pyrene Mfg. Co., 560 Belmont Avenue, Newark, N. J. Bulletin announcing the Phomene accumulator, an automatic foam fire protector for use in all types of industrial plants. The accumulator is charged with dry powder and a water line connection is made at the bottom which mixes automatically.

**Valves.**—Homestead Valve Mfg. Co., Homestead, Pa. Catalog 34, describing the company's line of valves for use in power plants and process or general industries. Listed for the first time are the Homestead protected seat hydraulic operating valve with remote control attachment, the larger size quarter-turn plug valve equipped with gear operating device and the Ross air valve.

**Washing Machinery.**—Nielsen Industries, Inc., Macabee Building, Detroit. Brief bulletin describing the company's Lightning washer for cleansing buildings, automobiles and various other articles on which spray work is possible.

**Power Transmission Machinery.**—Winfield H. Smith, Inc., Springfield, N. Y. Circular describing the company's line of light power transmission machinery. Illustrations of speed reducing gears, hangers, pillow blocks and other equipment for use in installations of small horsepower capacity are included.

**Air Filters.**—Reed Air Filter Co., Inc., Louisville, Ky. File sheet 30D3, providing data and specifications on the automatic self-cleaning Reed Streamline air filter. Unusually practical is the information on determining the size of filter required.

**Industrial Heating Appliances.**—American Gas Furnace Co., Spring and Lafayette Streets, Elizabeth, N. J. Bulletin illustrating some of the company's late designs of furnaces, heating and carbonizing machines, etc. Brief descriptions of the machines are included.

**Gas Handling Equipment.**—Connersville Blower Co., Connersville, Ind. Bulletin 33, devoted to a gas booster designed for use in plants where pressure is low or where gas is distributed to various departments through considerable lengths of piping. A special feature is the arrangement for equalizing pressure in oil reservoirs and thus preventing lubricating oil from working into the gas line.

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